

**U.S. Department of the Interior  
National Park Service  
Fort McHenry National Monument & Historic Shrine  
Baltimore, MD**

**Development Concept Plan/Environmental Assessment/  
Assessment of Effect**

**November 1, 2004**

---

**Proposed Action:**

The National Park Service (NPS) is proposing to replace the existing Visitor Center at Fort McHenry National Monument & Historic Shrine with a new Education/Administration facility that would accommodate current and future visitation needs, provide space for educational facilities and partner offices, and consolidate park operations. In conjunction with this project, an ongoing Cultural Landscape Report (CLR) and Alternative Transportation Study (ATS) will identify key resources and evaluate options for accessing the site. This Development Concept Plan/Environmental Assessment/Assessment of Effect (DCP/EA/AOE) analyzes alternatives for an Education/Administration facility, as well as associated elements of other ongoing planning efforts at the Park, including the ATS and a CLR. The impacts of these alternatives on the natural, cultural, and human environments are also discussed.

**For Further Information Contact:** John McKenna, General Superintendent  
(410) 962-4290

**Note to Reviewers and Respondents:**

If you wish to comment on the Environmental Assessment/Assessment of Effect, you may mail comments by December 1, 2004 to the name and address below. Please note that names and addresses of people who comment become part of the public record. If you wish for us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations, businesses, and individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Superintendent  
Fort McHenry National Monument & Historic Shrine  
2400 East Fort Avenue  
Baltimore, Maryland 21230

Comments submitted via electronic mail may be addressed to [fomc\\_superintendent@nps.gov](mailto:fomc_superintendent@nps.gov) by December 1, 2004.

---



# **EXECUTIVE SUMMARY**

The National Park Service is proposing to replace the existing Visitor Center at Fort McHenry National Monument & Historic Shrine with a new Education/Administration facility. The new facility would accommodate current and future visitation needs; provide vital space for educational purposes; consolidate park operations; and establish space for partner groups to assist in the Park's education and interpretive programs. In conjunction with this project, an ongoing Cultural Landscape Report and Alternative Transportation Study (ATS) would identify key resources and evaluate options for accessing the site.

Fort McHenry is the only National Park Service (NPS) unit designated as a National Monument and Historic Shrine. In addition, the site is a destination within the Baltimore Heritage Area and a Chesapeake Bay Gateways Network site. First established in the late 18<sup>th</sup> century as part of a national system of coastal fortifications, Fort McHenry's role in the defense of the city of Baltimore during a British attack in the War of 1812 inspired Francis Scott Key to write "The Star-Spangled Banner."

Much of the Park's infrastructure dates to the early 1960s. Since then, visitation at the Park has grown to approximately 608,077 annually, creating frequent overflows of people at both the Visitor Center and parking areas during peak seasons. Current projections suggest that the growth in visitation over the next 10 years could raise this number to an estimated 723,800. Motivated by these trends, the Park is considering changes in both site circulation/access and visitor facilities.

To accommodate increasing visitation at the Park and meet visitor and administration needs, the NPS proposes to improve the visitor experience and park operations by: providing updated facilities and increased services and amenities; increasing alternative transportation through improved services and strengthened partnerships; and enhancing the efficiency of park operations by removing functions from historic buildings and landscapes and providing adequate administration facilities.

This document considers four alternatives for a new Education/Administration facility and related improvements: one (1) No Build (No Action) Alternative and three (3) build alternatives. All of the actions proposed would be concentrated outside of the Fort's 1814 reservation boundary to avoid impacting resources critical to the Park's mission. These actions include:

- Alternative A – No Build
- Alternative B – Rehabilitated Visitor Center
- Alternative C – Campus Plan
- Alternative D – Education/Administration Building (NPS Preferred Alternative)

The **No Build Alternative** would not add any new facilities, other than those already planned under other projects, to Fort McHenry. The current Visitor Center would continue to lack adequate space for orientation, interpretation, and exhibits, and many of the Park's administrative offices would be spread out over the site, including those housed in the Star Fort.

**Alternative B** would seek to enhance and expand the current Visitor Center. These improvements would provide more room for interpretation and education, but would not be large enough to consolidate all of the Park's administrative functions. In order to remove these operations from the Star Fort, a new administrative building would be constructed by the front gate.

**Alternative C** would demolish the current Visitor Center and replace it with a new education/administration facility, located between the parking lot and the Patapsco River. The new facility would provide more room for interpretation and education than available in the **No Build Alternative** or **Alternative B**. It would not, however, provide enough space to consolidate the Park's administrative activities. As in **Alternative B**, a new administrative facility would be constructed by the front gate. In order to provide more parking, the overflow parking area would be paved to create a permanent parking terrace.

**Alternative D**, the NPS Preferred Alternative, would also demolish the current Visitor Center, and construct a facility between the parking lot and the historic road trace. This new structure would allow for all park operations, including administration, education, and visitor services, to be consolidated in this location. This would eliminate the need for an administration building by the front wall, as the other build alternatives propose. In order to provide more parking, two scenarios are presented for the current overflow parking area. Parking Option 1 would include the paved parking terrace described in **Alternative C**. Parking Option 2, which would maintain some of the Park's green space, incorporates a covered parking terrace.

All of the build alternatives would include the following:

- improved public restrooms;
- circulation improvements around the front gate;
- delineated bicycle access and bicycle parking area;
- bus pull off aprons alongside the Education/Administration facilities;
- coordinated effort for additional parking offsite; and
- coordinated effort for a floating dock to be attached to the current dock.

Impact topics were chosen for evaluation based on the Council of Environmental Quality's NEPA regulations and NPS Director's Order 12, by assessing the issues raised during regulatory and other scoping meetings, and by observing the potentially affected resources at the project site. The Environmentally Preferred Alternative is also the NPS preferred alternative, **Alternative D** with Parking Option 2.

All of the alternatives considered have beneficial and adverse impacts. In the build options, adverse impacts to soils, topography, and vegetation would occur as a result of clearing and placing the new

facility. Archeological resources might also be impacted, though this impact has been determined to be **no adverse effect** under Section 106 of the National Historic Preservation Act of 1966, as amended. Although negligible, floodplain areas would be adversely impacted in **Alternative C and D**.

Under the **No Build Alternative**, problems would continue to impact visitor use and experience, circulation, and park operations. The Visitor Center would not be adequately sized to handle current visitation levels. As a result, visitors would miss out on interpretive and educational information, like the film, before visiting the site. Buses would continue to create congestion both on Park roads and surrounding public roads. This would create safety hazards for pedestrians and other vehicles as they attempted to move around parked or moving buses. Finally, park operations would continue to be spread out across the Park, in locations that were not designed for administrative uses. This would create inefficiencies in operations and not allow the staff to fully focus on enhancing the Park.



# CONTENTS

|  |            |
|--|------------|
| <b>Executive Summary</b> .....                                     | <b>iii</b> |
| <b>1 Introduction: Purpose &amp; Need for Action</b> .....         | <b>1</b>   |
| Introduction.....  | 1          |
| Project Background .....   | 9          |
| History and Significance of the Park.....                          | 9          |
| The Battle of Baltimore .....                                      | 10         |
| Plans Outlining Management Goals .....                             | 13         |
| Master Plan .....  | 13         |
| Resource Management Plan .....                                     | 13         |
| Long Range Interpretive Plan.....                                  | 14         |
| Cultural Landscape Report.....                                     | 14         |
| Alternative Transportation Study .....                             | 15         |
| Archeological Overview and Assessment .....                        | 15         |
| National Register of Historic Places Documentation .....           | 15         |
| Determination of Ineligibility for Mission 66 Era Development..... | 15         |
| Purpose and Need for Action .....                                  | 16         |
| Planning Issues and Concerns.....                                  | 21         |
| Impact Topics .....  | 21         |
| Impact Topics Dismissed from Further Analysis .....                | 25         |
| <b>2 Alternatives</b> .....  | <b>29</b>  |
| Introduction.....  | 29         |
| Alternative A (No Build) .....                                     | 30         |
| Elements Common to the Action Alternatives .....                   | 33         |
| Alternative B .....  | 42         |
| Alternative C.....   | 46         |
| Alternative D (NPS Preferred Alternative) .....                    | 52         |
| Alternatives Considered But Dismissed .....                        | 65         |
| Environmentally Preferred Alternative .....                        | 66         |
| <b>3 Affected Environment</b> .....                                | <b>79</b>  |
| Introduction.....  | 79         |

|   |            |
|---|------------|
| Natural and Physical Resources .....              | 79         |
| Soils and Topography .....                        | 79         |
| Vegetation .....                                  | 80         |
| Floodplains .....                                 | 80         |
| Surface Waters and Chesapeake Bay Resources ..... | 81         |
| Hazardous Materials .....                         | 82         |
| Cultural Resources.....                           | 85         |
| Archeological Resources.....                      | 86         |
| Historic Structures .....                         | 87         |
| Cultural Landscapes.....                          | 88         |
| Museum Collections .....                          | 92         |
| Visual Resources .....                            | 93         |
| Visitor Use and Experience .....                  | 94         |
| Park Operations and Infrastructure .....          | 96         |
| Transportation .....                              | 99         |
| Circulation and Site Access.....                  | 100        |
| Local Economy and Land Use .....                  | 101        |
| <b>4 Environmental Consequences .....</b>         | <b>102</b> |
| Introduction.....                                 | 102        |
| Methodology.....                                  | 102        |
| Natural and Physical Resources .....              | 106        |
| Soils and Topography .....                        | 106        |
| Vegetation .....                                  | 109        |
| Floodplains .....                                 | 113        |
| Surface Waters and Chesapeake Bay Resources ..... | 116        |
| Hazardous Materials .....                         | 122        |
| Cultural Resources.....                           | 126        |
| Archeological Resources.....                      | 126        |
| Historic Structures .....                         | 131        |
| Cultural Landscapes.....                          | 134        |
| Museum Collections .....                          | 138        |
| Visual Resources .....                            | 140        |
| Visitor Use and Experience .....                  | 144        |
| Park Operations and Infrastructure .....          | 148        |
| Transportation .....                              | 153        |
| Circulation and Site Access.....                  | 159        |
| Local Economy and Land Use .....                  | 163        |
| <b>5 Consultation &amp; Coordination .....</b>    | <b>168</b> |
| Introduction.....                                 | 168        |

Brief History of Planning and Public Involvement ..... 168  
Interagency Coordination ..... 169  
List of Recipients ..... 170  
**References ..... 172**  
    Acronyms  
    Bibliography  
    List of Preparers  
**Appendices**

# FIGURES

| <i>Figure Number</i> | <i>Description</i>   | <i>Page Number</i> |
|----------------------|--|--------------------|
| 1                    | Project Vicinity and Location Map .....                        | 3                  |
| 2                    | Education/Administration Facility Study Area.....              | 5                  |
| 3                    | Existing Conditions.....                                       | 7                  |
| 4                    | 1814 Reservation Boundary Plan .....                           | 11                 |
| 5                    | No Build Alternative.....                                      | 31                 |
| 6                    | Front Gate Concept Improvements.....                           | 35                 |
| 7                    | Floating Dock Concept Design.....                              | 37                 |
| 8                    | Alternative B Concept Design .....                             | 43                 |
| 8a.                  | Alternative B – Perspective Model.....                         | 47                 |
| 9                    | Alternative C Concept Design .....                             | 49                 |
| 9a                   | Alternative C – Parking Terrace.....                           | 53                 |
| 9b.                  | Alternative C – Perspective Model.....                         | 55                 |
| 10                   | Alternative D Concept Design (NPS Preferred Alternative) ..... | 59                 |
| 10a                  | Alternative D – Parking Terrace.....                           | 61                 |
| 10b.                 | Alternative D – Perspective Model.....                         | 63                 |
| 11                   | Hydrologic Conditions .....                                    | 83                 |
| 12                   | Transportation Map.....  | 157                |

# TABLES

| <i>Table</i> | <i>Description</i>  | <i>Page Number</i> |
|--------------|---|--------------------|
| 1            | Summary of Key Alternative Elements.....                    | 40                 |
| 2            | Summary of Environmental Consequences.....                  | 69                 |
| 3            | Buildings, Memorials, and other Classified Structures ..... | 89                 |
| 4            | Visitation .....  | 95                 |

# INTRODUCTION: PURPOSE & NEED

## INTRODUCTION

Fort McHenry National Monument and Historic Shrine is a National Park Service (NPS) unit located in Baltimore, Maryland. In addition, the site is a destination within the Baltimore Heritage Area and a Chesapeake Bay Gateways Network site. First established in the late 18<sup>th</sup> century as part of a national system of coastal fortifications, Fort McHenry's role in the defense of the city of Baltimore during a British attack during the War of 1812 inspired Francis Scott Key to write "The Star-Spangled Banner."

Fort McHenry is located in Locust Point, just two miles from the Inner Harbor area of Baltimore, a booming industrial and economic growth center (Figure 1). The Park is accessible by car, public transit, school bus, private tour operator, and water transit service. Adjacent parcels are owned by the City of Baltimore, the U.S. Naval Reserve, the U.S. Army Corps of Engineers, and private industries. The Locust Point neighborhood is an active part of the Port of Baltimore area. The port has several commercial piers and a marine terminal located near Fort McHenry (Figure 2). Fort McHenry's 43 acres is one of the most consolidated green spaces in the region (Figure 3).

Much of the Park's infrastructure dates to the early 1960s. Since then, visitation at the Park has grown to approximately 608,077 annually, creating frequent overflows of people at both the Visitor Center and parking areas during peak seasons. Current projections suggest that the growth in visitation over the next 10 years could raise this number to 723,800. This has motivated the Park to consider conceptual planning for both site circulation/access and visitor facilities. The Park is proposing to replace the existing Visitor Center with a new Education/Administration facility that would accommodate current and future visitation needs; provide for educational facilities and minimal space for partner offices; and provide for consolidated park operations. In addition, an ongoing Alternative Transportation Study (ATS) would allow the Park to evaluate options for accessing the site.

This Development Concept Plan/Environmental Assessment/Assessment of Effect (DCP/EA/AOE) analyzes alternatives for an Education/Administration facility, as well as associated elements of other ongoing planning efforts at the Park, including the ATS and a Cultural Landscape Report (CLR). The impacts of these alternatives on the natural, cultural, and human environments are also discussed. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.9); *NPS Director's Order-12 (DO-12): Conservation Planning, Environmental Impact Analysis, and Decision-making*; and the National Historic Preservation Act (NHPA) of 1966, as amended.

## **NPS LINE-ITEM CONSTRUCTION PROGRAM PROJECT FUNDING**

The Fort McHenry education / administration building will undergo the following process in order to request design, construction and construction management funding for this project:

The NPS uses a service-wide priority system based on mission goals and other indices to develop a prioritized capital construction program. The process begins with field identification of individual facility deficiencies and capital improvement needs that are formulated into project proposals. Justifications are developed, construction costs estimated, and all of the information is entered into the NPS Project Management Information System (PMIS). Capital construction project information entered in PMIS is approved at the park, regional, and Washington office levels on a project-by-project basis.

The development of a service-wide line-item construction program begins when parks are annually requested to prioritize all of their PMIS entries, including major construction partnership projects, and submit them to their regional office. For line-item construction, the park-submitted projects are evaluated and prioritized into a regional list. Each region's submission is limited by a predetermined total-dollar construction allocation derived from an annual NPS service-wide budget allocation. Projects submitted by the regions are then evaluated and ranked based on their contribution to mission goals and costs using the NPS Choosing-By-Advantage program (a form of cost-benefit analysis); scored and banded using Department of Interior (DOI) emphasis criteria based on percentage of deferred maintenance, critical health and safety and resource protection benefits, and other factors; and ultimately prioritized into a service-wide line-item construction program. The resultant prioritized list generates a draft 5-year service-wide line-item construction plan (5-year plan). The draft 5-year plan lists all major construction projects by fiscal year in priority order including partnership projects that require a federal funding share. The draft plan is reviewed by the NPS Investment Review Board, a panel of senior executives, and approved by the NPS Director.

The NPS-approved 5-year plan is submitted to the Department of Interior for review and approval. Following DOI approval, the 5-year plan is submitted to the Office of Management and Budget (OMB) for review and approval as part of the NPS-DOI budget submission. Following OMB approval, the 5-year plan becomes part of the President's annual budget request to the Congress. The Congress reviews the individual projects, or "line items," requested for the initial year of the plan and makes funding decisions on a line-by-line basis. Congress may also provide feedback or direction on any project in the plan in specific language in the various committee reports accompanying their actions on the annual appropriations bill.

## **PROJECT SCHEDULE**

Subsequent to completing the Development Concept Plan, this project will need to be approved for funding by the NPS by the year 2010. Partners' fundraising efforts will need to be completed by 2009 in order for the facility to be constructed in time for the Bicentennial in 2012. The project will be considered in accordance with the NPS's line-item construction review process outlined above. The NPS has many needs for limited line-item construction funds and there is no guarantee that this project will be fully funded and completed by the proposed target date of September 2012. It is anticipated that this project will be a partnership project, and as such will have to be in compliance with the NPS partnership process outlined below:

Figure 1



Figure 2



Figure 3



Phase I – Initial Phase (Currently Underway)

- Identify and acquire and authorization for planning of construction project
- Notify and involve public
- Finalize Development Concept Plan

Phase II – Project Identification (Approximately 1 year)

- Prepare a Project Statement for construction of a facility to be reviewed and prioritized at regional and national levels
- Identify potential partners
- Prepare and finalize Letter of Intent between the NPS and project partners
- Get approval of the project by the Regional Director of the Northeast Region of the NPS
- Complete NPS Development Advisory Board review of the project
- Consult with Congress about the project

Phase III – Agreement Phase (Approximately 1 year)

- Prepare Fundraising Agreement and Communication Plan to be reviewed and approved by the Director of the National Park Service
- Consult with Congress about the project

Phase IV – Development Phase (Approximately 2 years)

- Begin fundraising activity
- Prepare, review and get approval for pre-design and schematic design from NPS Development Advisory Board
- Complete fundraising efforts

Phase V – Implementation Phase (Approximately 2-1/2 years)

- Complete final design (Approximately 1 year)
- Construction (Approximately 18 months)

## **PROJECT BACKGROUND**

### **HISTORY AND SIGNIFICANCE OF THE PARK**

Initial fortifications in the area were developed for the Revolutionary War in 1776. At the time, the peninsula was referred to as Whetstone Point. Coastal fortifications were crucial during the Revolution, and Whetstone Point had a strategic location guarding the port of Baltimore. After the war, as the Continental Army was reduced in size and focused on dealings with Native Americans, the Fort at Whetstone Point was sold to private interests. It remained in private hands for the next 13 years, when the State of Maryland ceded the land to the federal government.

By the early 1790s, tensions between England and the United States were rising. In preparation for another conflict, the United States government authorized funding for the First American System (1794-1804) in 1794 which sought to fortify the Atlantic Coast and the Great Lakes. Work at Whetstone point

under this program consisted of the construction of the Star Fort; which was named after the Secretary of War, James McHenry. Along with the construction, additional batteries were added to the area.

Tensions eased a bit at the turn of the century, and the rush to fortify the Atlantic Coast and Great Lakes, the First American System came to an end. By 1804, however, the French and British were involved in another conflict. The British Navy began boarding and impressing crews of American ships in order to maintain their own vessels to battle the French. These actions sparked the Second American System of coastal fortifications (1807-1818). This development was in preparation for a conflict between British and American forces and included the construction of new forts as well as increasing fire power and defenses at others (Cheek 2000).

### **THE BATTLE OF BALTIMORE**

In the summer of 1812, England and the United States went to war. Despite this formal declaration, it was not until 1814, that England devoted attention to the campaigns in America. The 1814 Fort McHenry consisted of the Star Fort, with a ravelin, a dry moat, and various inside buildings; an Upper Battery and a Lower Battery (near the water's edge), and several outbuildings, among them a barracks, store houses, and a hospital (Figure 4). The commander of the Fort, Major George Armistead (1780-1818), had commissioned a large American flag for the Fort. It was important to the Major that the flag be visible to ships at a great distance (Cheek 2000).

On August 24, 1814, a British force from an Atlantic based fleet entered Washington D.C. The British burned much of the city, and President James Madison was forced to flee to Virginia. Remaining American forces moved to regroup in Baltimore. The British also converged on Baltimore, which had been viewed as one of the British Navy's primary targets. Baltimore citizens had shown strong support for the war and had even initiated their own attacks on British ships. On the morning of September 13, 1814, British ships began bombarding Fort McHenry in an effort to flush out its defenders. The attack continued until the next morning when British cannons fell silent and the ships sailed away in defeat.

During the battle, Francis Scott Key watched from an American truce vessel. Key and another American representative had been sent by President Madison to negotiate the release of a Doctor William Beanes, who had been taken prisoner days earlier. Although the negotiation proved successful, Key and Dr. Beanes were detained until after the battle. Inspired by the events that he witnessed, Key penned "The Star-Spangled Banner," which later became our nation's National Anthem in 1931.

Fort McHenry was established as a National Monument in 1925, and received its current title as a National Monument & Historic Shrine in 1939. The Park was established to "preserve the Star Fort, the associated structures, material culture, archeology, and landscapes, and to provide for their use in a way that leaves them protected for future generations. These cultural and natural resources, representing a continuum of our nation's military history, and pivotal in the defense of Baltimore during the War of 1812, shall be preserved as a perpetual national monument and as a shrine of the birthplace of 'The Star-Spangled Banner.'"

Figure 4



## PLANS OUTLINING MANAGEMENT GOALS

### MASTER PLAN

The Fort Henry Master Plan (NPS 1968) sets a 10-20 year outlook for Park development. Amended in 1988, the document outlines plans for the future and identifies deficiencies that must be remedied in order to achieve the future needs and vision. The deficiencies in the Park's current Visitor Center are specifically outlined in the document and include: lack of space for interpretation and education, insufficient theater seating, and congested circulation (NPS 1988). It proposes three alternatives to address these deficiencies: maintain the status quo, build an addition to the current facility, or construct a new facility. Expanding the existing Visitor Center with an addition would nearly double the building's size, but would only meet the minimum requirements necessary to solve visitor and staff needs. It would impose a greater impact on the initial views of the site, as it would be located in the center of the Park. The construction of a new facility, if built, could meet all visitor and staff needs and improve the park setting by reducing the intrusion on the historical scene. It has been described as providing:

*“an interpretive program accessible to all visitors, adequate and appropriate visitor facilities, a visitor and resource protection program, a visitor and employee safety program, and a concession gift shop selling interpretive literature, theme-related items, and souvenirs.”*

Other construction elements outlined in the Master Plan include the construction of permanent restroom facilities adjacent to the parking lot (temporary facilities now exist) and the re-design of the current parking area to accommodate bus traffic. The redesign would provide safer pedestrian access from the parking area to the interpretive sites within the Park. All of the new facilities proposed in the 1988 Master Plan would be located outside the original 1814 boundary line of the Fort's property. The Master Plan also describes guidelines to select alternative facilities and for managing Park resources.

### RESOURCE MANAGEMENT PLAN

Fort McHenry's Resource Management Plan (NPS 1999) provides goals for cultural and natural resources and outlines the Park's natural and cultural resource inventory and monitoring efforts. The plan describes the current inventory of natural resources within the Fort McHenry and efforts underway to monitor and protect them. Similarly, the plan inventories the Park's cultural resources. It provides brief descriptions on the condition of these resources as well as current and planned monitoring activities. In addition to these descriptions, the plan notes the number of visitors that arrive at the Park annually and cites high approval ratings reported from visitor surveys. There is no information available to relate the high number of visitors to the condition of the resources.

One of the relevant goals outlined in the plan is the completion of a CLR to document important landscape characteristics and features contributing to the site's significance. Such a plan is currently underway by the Olmsted Center and is being conducted in collaboration with this report. Until the report is complete, the Park will not carry out any further plantings or new construction that could disrupt its cultural resources. Though it does not address the impacts of a new Education/Administration facility, the Resource Management Plan notes the need for a larger facility.

## LONG RANGE INTERPRETIVE PLAN

The Park's *Comprehensive Interpretive Plan* (NPS 2002) describes the ongoing interpretation at the Park, outlines a plan for improvements to the interpretive programs, and details the conditions that would result from implementation of that plan. Once again, the plan addresses deficiencies in the current Visitor Center as a hindrance to meeting the Park's interpretive goals. Specific recommendations include:

*Space is needed for the following functions: entrance lobby, accessible restrooms, orientation/information desk, auditorium and queuing space, permanent exhibit gallery, changing exhibit gallery, concession/cooperation association sales with office, work and storage space, dedicated education space, first aid, and administrative space for staff.*

By correcting these inadequacies, interpretive actions necessary to satisfy the visitor experience could be carried out. The recommendations, as outlined in the document, for properly implementing the desired interpretive programs include a larger facility. These needs helped guide the planning and design of the alternatives described below, and will direct the Park's development of the new facility.

## CULTURAL LANDSCAPE REPORT

The Olmsted Center for Landscape Preservation has worked to develop a CLR in conjunction with this project. Not only does the CLR provide valuable research information to the Park, but also provides guidelines for development that will avoid important resources. The objectives of the cultural landscape report are to:

- Inform the DCP/EA/AOE process regarding the Visitor Center replacement/expansion,
- Document the evolution of the Fort McHenry landscape,
- Identify landscape characteristics and features contributing to the site's historical significance,
- Document the changing historical approaches to site vegetation and vegetation management so as to guide future vegetation treatment and maintenance, and
- Provide documentation that supports Park consultation responsibilities under Section 106 of the NHPA and NEPA

The CLR includes a general introduction, a descriptive site history, narrative supported by graphics and plans, and an inventory of existing landscape conditions (including major landscape characteristics). The report concludes with an analysis of historical significance and an evaluation of historical integrity, which draws upon the findings of the 1999 National Register of Historic Places (NRHP) documentation form prepared for Fort McHenry, as well as on the Determination of Eligibility of Mission 66 era park development completed in 2003.

The report has aided the development of alternatives for the Education/Administration facility, and will continue to inform future developments at the Park to minimize impacts to sensitive cultural landscapes. A key element of the findings addresses the need to keep development out of the Fort's 1814 reservation boundary. The reservation boundary refers to the area that was considered Fort property at the time of the Battle of Baltimore. The boundary is shown on Figure 3. All of the alternatives described below avoid this area.

## **ALTERNATIVE TRANSPORTATION STUDY**

The Alternative Transportation Study (ATS) initiates an evaluation of modes of alternative transportation in and around Fort McHenry. This evaluation includes information on the types of transportation as well as the percentage of visitors using or potentially using these various modes. The ATS also recommends means to enhance the percentage of visitors using alternative transportation. This can be done by improving existing transportation options, such as extending the current public bus route, or by adding new elements, like a delineated bike lane on nearby roads and/or improved docks for water taxis. The recommendations made in the ATS will not be implemented with the Education/Administration project, but would be acted upon afterwards to support the facility's successful development.

## **ARCHEOLOGICAL OVERVIEW AND ASSESSMENT**

In 2000, an archeological overview and assessment, *'On the shore dimly seen...'* an Archeological Overview Fort McHenry National Monument and Historic Shrine Baltimore, Maryland, was completed for the Park. The assessment described the history of the region and the Fort to set the stage for description of archeological resources. Previous archeological investigations were described in the report, including their methodologies and findings. These findings are synthesized to provide an overall view of the Park's archeology in an effort to plan future investigations and projects.

The findings provided the baseline guidance for the development of this project. They describe the types of resources located throughout the Park, including those in areas selected for development. Staff continues to work with the appropriate agencies and experts to build from this information and provide detailed guidance on the development of the new facilities in a manner that will avoid significant impacts to archeological resources (Cheek 2000).

## **NATIONAL REGISTER OF HISTORIC PLACES DOCUMENTATION**

In April 1999, the documentation to place the Park's resources on the National Register of Historic Places (NRHP) was completed. This effort not only documented the importance of these resources, but placed limitations on future development. Based on its designation as a National Monument and Historic Shrine, the entire Park is listed on the NRHP. A large number of the natural, physical, and cultural resources within the Park contribute to this listing. Avoiding impacts to these resources was, and continues to be, a crucial part of this project.

## **DETERMINATION OF INELIGIBILITY FOR MISSION 66 ERA DEVELOPMENT**

The Park's current Visitor Center, one of its maintenance buildings, and the overall layout of the main Park road and parking area are products of the NPS Mission 66 development. Many of these developments are now eligible for consideration on the NRHP. In 2003, a detailed examination of the NHRP eligibilities of these buildings was undertaken. In June of that year, the Park's Mission 66 structures and design were determined to be ineligible for listing on the NRHP. As a result, these structures and facilities do not create development constraints for this project.

## **PURPOSE AND NEED FOR ACTION**

Fort McHenry represents a critical time in our nation's history when our shores were breached by a foreign invader. Washington, D.C., was ablaze and Baltimore City was under siege. A small group of Americans at Fort McHenry prepared to fight off their attackers. For 25 hours the battle waged on, and the citizens of Baltimore began to lose hope in their defenses. As dawn broke, the British and American guns were silent. The morning cannon at Fort McHenry fired a triumphant volley as the British ships sailed away from Baltimore, leaving the American flag flying high over the Fort.

As tensions in the world increase, this moment in American history and the significance of our flag and National Anthem have taken on a new meaning for Americans. This project offers enhanced opportunities for visitors to experience Fort McHenry's important role in American history.

## **PURPOSE**

To accommodate the increasing visitation at Fort McHenry and meet visitor and administration needs, the NPS proposes to improve the visitor experience by providing updated facilities and increased services and amenities. The NPS also supports enhancing the efficiency of Park operations by removing functions from historic buildings and landscapes and providing adequate space for administration activities. The proposed work would provide a larger facility to meet visitor needs as well as enhance the Park's ability to educate visitors on its resources. The proposed work would allow this to be done in a safe environment, which visitors could easily access. These elements would all contribute to the NPS goal of protecting and preserving our nation's historic resources.

Some of the objectives would be to:

- Provide safe accommodation for the steadily increasing volume of visitors;
- Provide a quality orientation experience for all visitors;
- Ensure access to meaningful interpretative and library services;
- Provide facilities and visitor services that comply with the Americans with Disabilities Act (ADA);
- Expand and promote water transport and transit services;
- Reduce congestion in the Park through improved on-site and off-site parking infrastructure and/or management;
- Reduce the potential mixed traffic safety hazard adjacent to the front gate;
- Provide new opportunities for bicycle and pedestrian access to the Park;
- Improve the delivery of traveler information and promote awareness of alternative transportation options and services, especially by collaborating with local stakeholders;
- Consolidate Park operations and establish central operation offices with accessible staff areas separate from visitor areas;
- Remove interpretive/commemorative elements that have lost their context or become obstacles to maintenance operations;
- Determine new location and design of an Education/Administration facility that minimizes impacts to the Park's cultural landscape; and
- Remove administrative and operational functions from the historic Star Fort and surrounding area.

## **NEED**

This DCP/EA/AOE seeks to address a number of deficiencies at the Park that were identified as early as 1968 during the preparation of the original Master Plan. These needs, particularly those related to facilities and interpretation, were again noted in the 1988 Master Plan Amendment/EA (FOMC 1988). Both documents and the Park's Statement for Management recommend a new visitor center.

The Statement for Management reports the following with respect to the visitor center:

*“The Visitor Center is inadequate to meet current needs. Visitors in the spring and summer often cannot see the Park film because the auditorium is filled by visiting groups. The four unit men’s and three unit women’s restrooms are frequently overcrowded, with lines of visitors in the lobby waiting to use the facilities. The 190-square-foot gift shop is frequently overcrowded, forcing visitors to wait in line before entering the shop. This situation is aggravated because the people waiting to use the restrooms block the entrance to the gift shop and cause congestion in front of the information desk. This bottleneck also prevents access to basement stairs utilized by Visitor Center staff. Office space for staff is also inadequate and restrooms must be shared with the visiting public.”*

In addition, safety concerns in the gift shop are compounded when limited floor space is used to store inventory behind the sales counter. This is also true for crowding throughout the building – tripping hazards are created whenever boxes are placed in office and travel space instead of loading docks and storage areas.

The current master plan describes the current visitor center and office space in the following terms:

*“The lobby, exhibit space and auditorium should be enlarged to provide “holding” space to provide a control of visitor movement to the Star Fort. Also, increased space for interpretive activities will permit more thorough “pre orientation” of visitors and thus enable them to complete the Fort tour more rapidly. Additional space is needed to relieve the congestion around the concession counter. Also, toilet rooms must be enlarged. More space is needed for staff offices, which at present are badly crowded. Provisions also should be made for a conference room, library and workroom for study collections and for storage. It is estimated that the present structure should be doubled in size to accommodate the increased needs described above.”*

The identified concerns can generally be divided into three categories: improving visitor experience, enhancing transportation options, and Park operations. The objectives listed above address established needs and will be incorporated into each build alternative.

## **VISITOR EXPERIENCE**

For some time, the size and location of the Visitor Center has presented numerous challenges. As visitation continues to increase and facilities at Fort McHenry become more outdated, the quality of the visitor experience will decline. The Park's 5,700 square foot Visitor Center was built in 1964 to accommodate an annual visitation of 250,000, yet visitation has reached an estimated 608,077 annually,

and the building cannot meet visitor service or administrative needs. With a 70-seat auditorium, the building cannot always accommodate school and tour groups that are common in the spring and summer. The result is that 30-40% of school groups cannot view the orientation film during the busy school season (April-May), and up to 20% of general visitors and bus tours do not view the film during May-October. Those who are turned away from the Visitor Center but choose to stay on the site and explore do so without an adequate orientation to the Park's history and resources. Rangers report that many others simply give up and leave rather than waiting for another showing of the film.

The lack of space has also forced the Park to minimize interpretive exhibits. Fort McHenry maintains a sizable museum collection of over 55,000 artifacts including extremely rare weapons, uniforms, flags, commemorative memorabilia, rare books, furnishings, period archival documents, and a substantial collection of archeological material. These artifacts provide physical evidence of the site's military history relating to the War of 1812 up through World War II. The Park also maintains a Park History Collection pertaining to the site's history since it became a unit in the National Park Service. Few items from this unique collection can be utilized in interpretive exhibits in the current facility because of the lack of space and security. This current deficiency further reduces the visitor's ability to understand the significance of the site or learn more about the times and events that impacted it. This lack of education causes visitors to leave the Park without an understanding of what specifically happened at the site. Visitors do not learn about the Fort in the wider context of the War of 1812 and the events leading to the Battle of Baltimore, nor do they gain an understanding of the importance of the Chesapeake Bay as a strategic corridor during the war. Space constraints also limit opportunities to interpret the Chesapeake Bay ecosystem and stress the site's role as a Chesapeake Bay Gateway.

The lack of visitor conveniences at the site is another factor limiting the length of stay. There are restrooms located in the Visitor Center and adjacent to the parking lot. However, those in the Visitor Center are not ADA compliant. Aside from vending machines, there are no food services available at the site. Visitors can choose to leave the Park and find food within the neighboring area; however, visitors arriving via water taxi must walk one-half mile to find refreshments or cut their visit short.

Current concession space is woefully inadequate. Sales items waiting to be restocked are currently stored on the floor of the gift shop, on the floor of the visitor center lobby and corridor to the bathrooms of the visitor center lobby. Sales staff must process mail order items at their cash register while conducting other business. Storage rooms are inadequate for either of these tasks and currently accessed via a narrow, steep staircase in the basement. The size and infrastructure of the current gift shop allows for sales only, no interpretive messages for the relevance of the items, and very little room for regional and national emphasis items. In addition, the current operation has no loading dock or area for unloading packages that can be voluminous at times and present a security risk.

## **ALTERNATIVE TRANSPORTATION**

An important issue is the need to increase alternative transportation services through strengthened partnerships to reduce congestion resulting from increasing visitor numbers. The NPS's system-wide transportation goal is to offer a range of safe visitor transportation options, including alternative

transportation methods to reduce the use of personal automobiles for transport to and within parks. The proposed improvements would not only expand transportation options to Fort McHenry, but would improve visitor safety and resource protection as well. The Fort McHenry ATS aims to improve the current alternative transportation services – public transit, school bus, private tour operator, pedestrian, bicycle, and water taxi service – through new or enhanced transportation services, and better presentation of traveler information.

Currently, alternative transportation options to Fort McHenry are limited. There is one public bus line that terminates at the entrance to the gate, which is used by few Park visitors. Traveling to Fort McHenry via this route could potentially be a long trip (over 45 minutes from the connecting Mondawmin Metro station). Water transportation services are also provided to the site by two service providers. It is estimated that in 2002 11% of visitors to the Fort used one of the two water transportation services that serves the Fort. One of the water taxi services provides a shuttle bus from a landing at Tide Point mixed-use development to the Fort and a second service provides a water taxi to a City-owned dock adjacent to the Fort. A fairly large percentage of visitors to the site are school children who arrive on school buses. Visitors also come to the site via private tour buses. The total number of visitors who arrive at the Fort via school and tour bus is approximately 11% of the total visitation. Finally, local visitors may arrive on foot or by bicycle. Pedestrian and bicycle visitors to the Fort are estimated to be approximately 9% of total visitors.

It is currently estimated that approximately 70% of Fort visitors arrive via private automobile. The current Visitor Center has 161 automobile parking spaces for vehicles and six bus parking spaces. During peak season, from late April to mid-June, large numbers of school and/or tour groups visit the Park. It is common to have 25-35 buses access the site per day. The six bus parking spaces are insufficient to accommodate this peak demand, which creates traffic problems in the Park and in the surrounding community, as buses look for parking outside the Fort. Often special event tour buses discharge their passengers at the entrance to the site and search elsewhere in the neighborhood for parking, returning to the Park at a specified time to meet their groups. When parking for private autos exceeds the supply in the existing visitor parking lot, the Park allows overflow parking on a stabilized turf area located between the visitor parking lot and the current administration building. Frequent use of the overflow area damages the turf. The nearby Naval Reserve Center and Maryland Port Authority permit some overflow parking in their parking lots as well. The port authority allows Park visitors to park in its lot during special events. The Naval Reserve restricts its parking to NPS event staff.

The dimensions of the historic entrance gate to the Fort also create traffic problems. The entrance gate was constructed in 1837 and is hazardous to vehicles, pedestrians, and bicycles because of 1) the abrupt transition from wide two-lane thoroughfares to the narrow one-lane gate passage, 2) the mix of car and truck traffic from Fort Avenue and Wallace Street outside the gate, and Constellation Plaza and the maintenance area service road inside the gate, and 3) the lack of signage and traffic control outside the gate.

## **PARK OPERATIONS AND INFRASTRUCTURE**

From the time the current Visitor Center was constructed, Park management has recognized major design deficiencies. The basement area has restricted use due to the lack of more than one egress. Until the Park staff recognized the Life Safety Code violation of only having one exit, the basement was used for a variety of functions including meeting area, offices, and general storage. A second egress was discussed but never constructed due to other deficiencies causing drainage problems within the exterior walls of the building. Since it was constructed in 1964, the structure has been plagued by periodic flooding throughout the building. Installing an additional penetration through the foundation to provide a second egress was not feasible because of the potential to worsen the drainage problem.

The general age and design of the structure underscores other issues such as deteriorating exterior façade. The existing window systems are failing which allows water penetration. The rusting steel frames are crushing the plate glass. The flat roof systems are failing from exposure to climatic changes. This problem is aggravated by the mandatory use of "sharp shooter stands" for presidential visits and the addition of an air quality station mounted on the flat roof. The original design for the ductwork for the HVAC is undersized for the equipment being used in the facility. This is an irreversible deficiency since the supports are poured in the floors and foundations. Overall construction methods used in the original design make it impossible to retrofit the current building to address building code issues or energy efficiency thrusts.

In order for Fort McHenry to make these improvements and move forward in its mission, infrastructure improvements are necessary to enhance staff efficiency and progress. Park headquarters operations are spread among five buildings around the site, up to 1/3 mile apart: the Visitor Center, the Star Fort, two maintenance buildings, and the former superintendent's quarters. The existing Visitor Center, which houses administrative offices and the staff break room and lockers, is located on the historic landscape within the viewshed of the Star Fort and within the historic scene. In addition, the building's 1960s Modernist design is incompatible with other structures in the Fort area. Due to the lack of available space in the Visitor Center, modern functions, including the Park library, staff offices, and archival collections storage, are inappropriately located in historic structures. Also, the library's location in the Fort makes it inaccessible to many visitors, as it is located on the second floor and is not ADA accessible.

Much of the Visitor Center is not ADA compliant, and volunteers and staff with disabilities are not able to access the Park's break room or locker area in the basement of the Visitor Center. In addition, these volunteers are not able to use the restrooms in the Visitor Center.

The disjointed nature of Fort McHenry's administrative offices also poses a problem. With offices located at opposite ends of the Park, a great deal of time is wasted traveling between the various offices for various tasks. This reduces efficiency and takes away time that could be spent assisting visitors.

Over the years, trees have been planted throughout the site and the overall impact has diminished the Star Fort as the focal point of visitor's attention. Some trees were planted to honor certain people associated with the Battle of Baltimore and bronze plaques were installed to mark the locations. However, many of these trees have died and have not been replaced. Missing trees not only confuse visitors but also take

away from the significance of the plaques. The plaques themselves hinder maintenance operations as landscaping activities must carefully work around them. In addition, the building's 1960s Mission 66 design has been determined to be ineligible for inclusion on the NRHP and is incompatible with other structures in the Fort area.

Currently, because of long lines, many visitors bypass the fee collection area at the Fort and roam the site without paying. There are no statistics on how often this happens, but anecdotal evidence indicates that it does, leading to lost revenue for the Park. This could limit the use of fees to help fund the proposed improvements.

## PLANNING ISSUES AND CONCERNS

Issues and concerns affecting this proposal were identified from past NPS planning efforts, and input from environmental groups and state and federal agencies.

**Community Support.** Fort McHenry has been fortunate to play a role in the development of a strong community environment at Locust Point. Local groups work hard to ensure that development within the community does not detract from its character. The Park has received support from these groups in the past, and it is important that the community be aware of and support the facility and related designs.

**Landscape/Viewsheds.** The Park is surrounded by urban development and provides the local community and the city with a rare piece of green landscape and unobstructed views of the harbor. These qualities are not only important recreational elements, but also as historical resources vital to the story of Fort McHenry. A new design should seek to preserve and capitalize on these resources.

**Safety.** The current entrance to the site creates a number of safety issues as vehicles waiting to enter the Park must contend with other vehicles accessing adjacent sites. Vehicles exiting the site must also deal with this congestion, as well as pedestrians walking along the main Park road. Pedestrian and vehicular congestion exist along much of the main Park road. A new design should address these issues and seek to mitigate them.

**Stormwater management.** The Park sits at the confluence of tributaries to the Chesapeake Bay. It also has a constructed wetland area adjacent to it. Legal requirements and the Park's desire to maintain its reputation as a good neighbor require that any new design not only mitigate but also reduce stormwater loads.

## IMPACT TOPICS

Specific impact topics were developed to allow comparison of the environmental consequences of each alternative. These impact topics were identified based on federal laws, regulations, and Executive Orders; *NPS Management Policies 2001*, and NPS knowledge of limited or easily impacted resources. The following impact topics and environmental considerations were identified and considered in this project and will be discussed in more detail in "Chapter 3: Affected Environment" and "Chapter 4: Environmental Consequences."

## **NATURAL AND PHYSICAL RESOURCES**

### **SOILS AND TOPOGRAPHY**

Soils and topography at Fort McHenry have been impacted for centuries as defensive techniques have changed, resulting in soil disruptions and landscaping. Much of the soil in the area is fill material brought in during historic development activities at the Fort. The proposed project would create soil disturbances at the Park as the current Visitor Center is removed, a new facility constructed, and improved parking areas, driveways, and sidewalks are laid out. For this reason, soils and topography is considered as an impact topic.

### **VEGETATION**

Like the soils and topography in the area, Fort McHenry's vegetation has been altered throughout its history as military development changed over the years. As more land was taken up, vegetation was removed. Later on, as the military presence was removed from the Fort, vegetation was replaced with a variety of species. Today, Fort McHenry's vegetation is a "park-like" setting containing maintained lawns that are considered urban in character. Numerous tree and shrub species also exist on the site. The build alternatives would impact vegetated areas near the current and proposed facilities; therefore, vegetation is considered as an impact topic.

### **FLOODPLAINS**

Floodplains provide natural flood protection and erosion control. As river levels rise, water spills into the floodplain. This low-lying area allows the heightened water levels to flow by without eroding the surrounding landscape. As the water recedes, the floodplain accumulates the sediment that is carried in the water, thus reducing the amount of sediment picked up by the floodwaters. Fort McHenry is located at the confluence of Northwest Branch and Middle Branch of the Patapsco River. Portions of the Park are located within the 100-year and 500-year floodplains. Because development could extend into, or impact resources within the floodplain, it is considered an impact topic.

### **SURFACE WATERS AND CHESAPEAKE BAY RESOURCES**

The Chesapeake Bay is the largest estuary in North America. There are an estimated 150 major rivers flowing into the Bay, and approximately 100,000 streams. The Bay supports over 300 species of fish and 2,700 plants. Fort McHenry lands are located within the Chesapeake Bay drainage basin. The project could impact the Chesapeake Bay Critical Area as defined by the State of Maryland's Chesapeake Bay Critical Area Law. This area is defined as being within 1,000 feet of the Chesapeake Bay, its tributaries to the head of tide, and tidal wetlands. Due to this potential impact, surface waters and Chesapeake Bay Resources is considered as impact topic.

## **HAZARDOUS MATERIALS**

A hazardous material is a chemical or mixture of chemicals that is toxic, highly toxic, an irritant, a corrosive, a strong oxidizer, a strong sensitizer, combustible, flammable, extremely flammable, dangerously reactive, pressure generating, or that otherwise may cause substantial personal injury or substantial illness during or as a direct result of any customary or reasonable foreseeable handling or use (NPS 1993). The presence of asbestos containing material (ACM) and lead-based paint (LBP) at the current Visitor Center and other Park structures may present a risk during construction activities. Because of this potential risk, hazardous materials is considered as an impact topic.

## **ARCHEOLOGICAL RESOURCES**

The NPS defines archeological resources as, “any material remains or physical evidence of past human life or activities which are of archeological interest, including the record of the impacts of human activities on the environment,” (NPS-28: *Cultural Resource Management Guideline*). There are many archeological resources within the park, only some of which have been investigated to date, that have the potential of contributing to an increased understanding of the area’s history. The project could affect the integrity of these resources and/or those resources that remain undiscovered. For these reasons, archeological resources is considered to be an impact topic.

## **HISTORIC STRUCTURES**

The NPS defines a historic structure as one that is, “significant in American history, architecture, engineering, archeology, or culture,” (NPS-28). Fort McHenry is listed on the NRHP, and complete documentation for the park was submitted and approved by the Keeper of the National Register in April 1999. While there are numerous Mission 66 Era features in the park, these various Mission 66 buildings and landscape designs were deemed ineligible to be included in the NRHP in June 2000. The Star Fort is currently used to house Park collections and administrative operations. These uses could be modified or removed based on the project development. For these reasons, historic structures is considered as an impact topic.

## **CULTURAL LANDSCAPES**

The NPS defines cultural landscapes as, “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person exhibiting other cultural or aesthetic values,” (NPS-28). Fort McHenry National Monument & Historic Shrine represents a historic site composed of numerous historic, archeological, and cultural landscape resources that reflect the historic continuum of Fort McHenry's evolutionary development. These resources comprise the structural design elements and materials that have gone into the Fort’s construction and the artifacts and other elements of material culture associated with the various periods of construction and occupation. These resources may be impacted by the project. Therefore, cultural landscapes is considered as an impact topic.

## **MUSEUM COLLECTIONS**

The NPS defines museum collections as, “an assemblage of objects, works of art, historic documents, and/or natural history specimens collected according to a rational scheme and maintained so they can be preserved, studied, and interpreted for public benefit,” (NPS-28). The Park’s museum collection consists of over 55,000 artifacts that are currently stored in the Civil War Powder Magazine along with over 5,000 artifacts from Hampton National Historic Site (Fort McHenry’s sister site). Over 70,000 historical documents have been copied on paper and microfilm, and are stored in the library in the Star Fort. These documents hold substantial information and insights into the history of Fort McHenry, its uses, and development through time. These papers also contain important information about the Park’s historical and archeological significance. The build alternatives could impact their storage; therefore, the topic of museum collections is considered an impact topic.

## **VISUAL RESOURCES**

Visual resources comprise the backbone of the history of Fort McHenry and what it represents today. Sites from the Battle of Baltimore and the flag flying high over the Fort inspired Francis Scott Key to pen the words that would become our National Anthem. Today the Park continues to preserve views of the flag, the Fort, and the harbor where the Battle occurred many years ago. Fort McHenry also provides one of the few locations in the area with ample green space and undisturbed views of the water. Development of the new facility and related structures could impact this resource. Due to this potential impact, the topic of visual resources is considered as an impact topic.

## **VISITOR USE AND EXPERIENCE**

Providing education, interpretation, and an all-around visitor experience is a core element of the NPS. Parks not only seek to protect and preserve important resources, but also preserve and present them to the public. Each of the build alternatives would seek to improve visitor experience. These alternatives would also impact the Fort McHenry landscape and could impact visitor experience. Visitor use and experience is therefore considered to be an impact topic.

## **PARK OPERATIONS AND INFRASTRUCTURE**

Parks are more than just natural and cultural resources. They are buildings, roads, and other facilities. All of these are maintained, studied, and in some cases preserved, and presented by park staff. To satisfy the proposed need, changes to the Visitor Center, parking configuration, and operations overall are necessary. These changes would alter the current operations in terms of available space and location. Because of these impacts, Park operations and infrastructure is included as an impact topic.

## **TRANSPORTATION**

Securing safe and reliable transportation to park units is a critical task of the NPS. One of the initiatives the agency has developed is to enhance alternative modes of transportation. Alternative modes of transportation have been shown to reduce impact to the surrounding resources, reduce congestion on local

or Park roads, and, as an added benefit, provide a unique experience for the visitor. In conjunction with the DCP/EA/AOE, an ATS is underway. This study has analyzed ways to enhance multimodal transportation options to the park, including linkages to the regional transportation network. Potential impacts would arise from new visitor transportation patterns involving modal shifts among cars, buses, and water transport. Therefore, transportation is considered as an impact topic.

## **CIRCULATION AND SITE ACCESS**

The purpose of park roads is to, “enhance visitor experience while providing safe and efficient accommodation of park visitors and serve essential management needs,” (NPS 1984). Current circulation and site access patterns have created congestion and general visitor confusion. The build alternatives would seek to improve both circulation and site access in an effort to improve visitor experience and appreciation of the Park. Based on these potential improvements, circulation and site access is considered as an impact topic.

## **LOCAL ECONOMY AND LAND USE**

It is important to the NPS to foster a healthy and productive relationship with the communities surrounding its units. Changes in the local economy or land use may impact a Park, while changes made within the Park have the potential to contribute economic or land use changes in the surrounding community. Currently all of Fort McHenry’s land is used for interpretation, visitor experience, or support activities. The only private vendor within the Park is the Evelyn Hill Corporation which operates the gift shop. Two separate water transit services provide access to the Park. There is the potential for a food service to be added to the peninsula and/or the water transit services to be modified. For these reasons, local economy and land use is considered as an impact topic.

## **IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS**

The following impact topics and environmental considerations were identified but eliminated from further analysis because they are not affected by the proposed alternatives or the existing conditions at the project area.

### **PRIME FARMLAND**

Prime farmland is one of several designations made by the U.S. Department of Agriculture (USDA) to identify important farmland in the United States. The Baltimore County Soil Conservation District (BCSCD), of which Baltimore City is a part, provides assistance to local farmers, homeowners, and developers on soil conservation practices and farmland management that will prevent the loss of valuable soils. Prime farmland is important because it contributes to the nation’s short- and long-range needs for food and fiber. Urban or developed areas are not considered prime farmland; therefore, there is no prime farmland located within the project area. Prime farmland was therefore dismissed from further analysis.

## **RARE, THREATENED, AND ENDANGERED SPECIES**

In a letter dated February 9, 2004, the U.S. Fish and Wildlife Service (FWS) indicated that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. The Maryland Department of Natural Resources (DNR) concurred with this finding, in a letter dated January 22, 2004. Maryland DNR has no record of Federal or State rare, threatened, or endangered animals or plants within the project area. The open waters adjacent to the area, however, are known historic waterfowl concentration areas. If any water dependent facilities are to be constructed, the Wildlife and Heritage Service would be consulted for technical assistance regarding waterfowl. Rare, threatened, and endangered species were therefore dismissed from consideration. See correspondence in Appendix A for additional information.

## **WILDLIFE HABITAT**

The project would not impact wildlife habitat. The Park's vegetation is limited and confined primarily to a designed landscape. Such a landscape does not support a unique habitat that could not be found in the surrounding area. Work associated with this project would take place within the existing Park area, a developed area with high human activity levels. Wildlife in the area could be impacted temporarily during construction; however, this impact would be short-term and negligible. Wildlife habitat was therefore eliminated as an impact topic.

## **AIR QUALITY**

Fort McHenry is located in the Baltimore Metropolitan Region, which includes Anne Arundel, Baltimore, Carroll, Harford, and Howard counties, and Baltimore City. The region is designated as severe ground level ozone "nonattainment area" by the U.S. Environmental Protection Agency (EPA). This status implies that the region fails to meet the health based standard for ground level ozone pollution. The EPA continues to work with nonattainment areas throughout the United States to develop ways of reducing pollution and thus improving air quality.

Actions proposed under this project would have some short-term impacts to air quality. Hauling material, operating equipment and other construction activities could result in a short-term increase of vehicle exhaust and emissions. However, hydrocarbons, nitrates (NO<sub>x</sub>), and sulfur dioxide (SO<sub>2</sub>) emissions, as well as any airborne particulates created by fugitive dust plumes, would be rapidly dissipated because air stagnation is rare at the project site. Overall, there could be a negligible degradation of local air quality; however, such impacts would be short-term, lasting only as long as construction. Furthermore, as the area has already been designated as nonattainment, these short-term impacts would not lead to any definable degradation of air quality. Therefore, air quality was dismissed as an impact topic.

## **LIGHTSCAPES**

In accordance with *NPS Management Policies 2001* (NPS 2000), the NPS strives to preserve natural ambient landscapes, which are natural resources and values that exist in the absence of human caused light. Fort McHenry closes at dusk. Therefore, any additional lighting would not impact the Park's mission, and is dismissed as an impact topic.

## **SOUNDSCAPES**

In accordance with *NPS Management Policies 2001* (NPS 2000) and *Director's Order 47: Sound Preservation and Noise Management* (NPS 2000a), an important part of the NPS mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas. Any impacts to the Park's soundscape would be temporary and would occur only during construction periods. Therefore, soundscape was dismissed as an impact topic.

## **ETHNOGRAPHIC RESOURCES**

Ethnographic resources are defined as any "site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it," (NPS - 28). Presently, there are no known ethnographic sites in the project area. In the unlikely event that human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (25 USC 3001) of 1990 would be followed.

## **INDIAN TRUST RESOURCES**

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources in Fort McHenry. The lands comprising the Park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian trust resources is dismissed as an impact topic.

## **ENVIRONMENTAL JUSTICE**

Presidential Executive Order 12898, “General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or environmental impacts of their programs and policies on minorities and low-income populations and communities. The proposed action would not have health or environmental impacts on minorities or low-income populations or communities as defined in the National Environmental Justice Advisory Council (EPA 2004). Therefore, environmental justice was dismissed as an impact topic.

# ALTERNATIVES

## INTRODUCTION

The alternatives section describes four alternatives for the Fort McHenry DCP, the **No Build (No Action) Alternative** and three build alternatives. It also lists several alternatives that were considered but dismissed. The build alternatives for this project were developed to resolve specific concerns related to visitor use and experience; Park operations and inefficiencies; and poor pedestrian and vehicular circulation and site access. The action alternatives presented in this document combine the development of a new or rehabilitated Education/Administration facility with new parking and access strategies. All of the build options seek to enhance the visitor experience by providing improved interpretation and education facilities, more space for consolidation of Park operations, and congestion relief for vehicles and pedestrians both in and immediately outside the gates of Fort McHenry.

The basis for the facility designs described below was derived from the NPS predictive facilities model. The inputs for the planning model for visitor facilities were developed after extensive research in such buildings across the nation, including NPS examples, other public (Federal, State, local) agencies, and private museums.

The model is a predictive tool giving realistic project size and cost as determined from answers to a series of basic questions. Results include a baseline NPS facility size as well as the gross square feet needed for a building customized for particular park requirements. Through interviews with Fort McHenry (FOMC) staff and resulting data, the NPS Washington Office of Construction Program Management conducted a facility planning model analysis of the proposed Education/Administrative Center. Two model applications were run: the Visitor Facility Planning Model and the Administration Facility Planning Model. Results of the two models will be combined, with adjustments for duplication of spaces, into one building. While the visitor facility results exceed the benchmark of comparable facilities in the NPS, the visitation modifications that produced these results are deemed acceptable and based on valid data. The consequent square footage assignments are thus deemed acceptable model results for the specific facility under discussion.

The NPS has adopted the concept of sustainable design as a guiding principle of facility planning and development. The objectives of sustainability are to design facilities to minimize adverse impacts on natural and cultural values, reflect the environmental setting, maintain and encourage biodiversity; to construct and retrofit facilities using energy-efficient materials and building techniques; to operate and maintain facilities to promote sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is living

within the environment with the least impact on the environment. This project subscribes to and supports the practices of sustainable planning, design, and use by creating a new Education/Administration structure that would support the Park's goals and avoid any need to develop a new building in the future.

An overview of each alternative is provided below. The levels of and approach to the proposed modifications vary among the alternatives, but in all build options there are great improvements to the visitor experience, circulation and site access, and park operations. The changes that are proposed for Fort McHenry are attributed to the Education/Administration facility, changes in circulation and parking, and the alterations at the maintenance facility. For comparison purposes, the alternatives are described by these topic areas.

## **ALTERNATIVE A – NO BUILD ALTERNATIVE**

Under the **No Build Alternative**, the current Visitor Center would be maintained in its current size, location, and function. Efforts to utilize the limited space would continue. Park offices would remain in the Star Fort until a more appropriate location could be developed, and the maintenance area and parking scheme would remain unchanged. These locations are described in detail below and illustrated in Figure 5.

### **EDUCATION/ADMINISTRATION FACILITY**

The current Visitor Center functions as the Park's orientation, education, exhibit, and administration facility, providing approximately 5,700 square feet of usable space. The total area covered by the Visitor Center is 5,000 square feet. The Visitor Center contains a scaled model of the park and several paintings interpreting the history of Fort McHenry. The area for these displays is relatively small, situated between the theater and administrative offices. These elements provide a brief background for visitors prior to entering the theater to view the Park's interpretive film. The lobby also houses the information/fee desk and bookstore. Restrooms are available in the Visitor Center; however, they are not ADA compliant. Temporary ADA accessible restrooms are located outside the building, adjacent to the parking lot. The theater provides limited seating to view a film that tells the story of the Battle of Baltimore. As the film ends, a curtain opens to reveal a direct view of the flag flying over the Fort. The film and the displays in the lobby are the only educational elements that can be fit into the Visitor Center.

Due to the lack of space, most of the Park's administrative functions are carried out in the Fort or Mission 66 duplex located west of the overflow parking area. The superintendent's office has remained in the Visitor Center, while many of the other ranger offices are now located on the second floor of one of the buildings in the Fort. The Fort McHenry library, a small conference room, and an NPS residence are also located on the second floor. The ground floors of several of the buildings in the Fort are used for interpretive displays. These displays include audiovisual elements showing how the Battle of Baltimore unfolded, uniforms worn by soldiers throughout the Fort's history, and a room designed to present soldiers quarters as they were during the Battle of Baltimore. The remainder of the Park's administrative activities is carried out in the Mission 66 duplex, located near the front gate, far from the Visitor Center and Fort. Though not designed for administrative use, the building provides the only remaining space suitable for this use. The other half of this building is used for NPS housing.

Figure 5



## **PARKING**

Under the **No Build Alternative** (Figure 5), converging two-way traffic at the entrance to the Park passes through the narrow entrance gate. Once through the gate, vehicles follow the unlined Park road to the parking lot. The parking lot presently provides space for 161 automobile parking spaces and six bus spaces. The bus spaces are not designed to provide easy maneuverability for large buses. As a result, buses back up into traffic, block the road, and create safety hazards for both pedestrians and other vehicles. The grass lot to the west of the parking lot has been maintained by the Park for overflow parking, allowing an additional 125 cars to park on grass turf. This parking capacity is regularly exceeded during spring and summer months, and during special events. Several additional parking spaces exist around the Mission 66 duplex and outside the front wall; however these spaces are for employee use only.

## **MAINTENANCE AREA**

Under this alternative, maintenance operations will continue to be housed in two locations. The first locale is north of the entrance gate, along the Boundary Wall. This building is one of the Park's Mission 66 structures, and is located adjacent to the duplex which is also Mission 66 in style. The maintenance building houses the employee break room, a few offices, and storage areas. There is a separate entrance and driveway for this area from Wallace Street.

The remaining maintenance operation is located at the opposite side of the Park entrance road, south of the main entrance gate. The operation here is housed in a metal building that was recycled from Gettysburg National Military Park (NMP). The building is used primarily for storage and maintenance activities. There are no sewer services or running water available at this facility. Park operations have used much of the grass and dirt area around this building to park vehicles and store large pieces of equipment.

## **ELEMENTS COMMON TO THE BUILD ALTERNATIVES**

Along with creating a new facility, the build alternatives are also designed to address the planning issues outlined in the Introduction of this document. These issues include congestion around the front gate, access, circulation, and safety. Several proposed actions are common to all of the build alternatives, and would all be concentrated outside of the 1814 reservation boundary of the Fort. These actions include:

### **FRONT GATE**

Congestion around the front gate is an ongoing problem for Fort McHenry and its visitors. It creates safety hazards, and can create a poor first impression of the Park. In order to improve this situation, all of the build alternatives consider the following:

- Eliminate traffic conflicts at the front gate,
- Make the pedestrian sidewalks continuous through the gate, and
- Improve the “first impression” of the visitor at the gate.

While the simplest physical modification may be to expand the existing gate to provide sufficient width for two-way traffic, this alternative has been ruled out since this gate is basically unchanged from its 1837 configuration and is a character defining feature of the Fort.

In every build alternative, the East Fort Avenue/Constellation Plaza roadway curb line would be realigned with the inside of the gate piers, connecting the NPS sidewalks inside the Fort with the City sidewalks outside of the Fort.

Each alternative also includes traffic calming measures to reduce vehicular speeds and improve the visitor's "first impression," of the Park. Traffic calming, as defined by the Institute of Transportation Engineers, "...involves changes in street alignment, installation of barriers, and other physical measures to reduce traffic speeds and/or cut-through volumes, in the interest of street safety, livability, and other public purposes." In all of the build scenarios, a speed table (3 to 4 inch raised area in a roadway, approx 20' long, with different texture) would be installed to reduce vehicular speeds and provide a visual cue to drivers approaching the narrow gate. Experience with speed tables has shown to reduce speeds by nearly 20%, and decrease accidents by almost 50%. The speed table surface may be paved with brick or cobblestone (both materials have precedent in this area historically), and would provide the textural change from asphalt that is desired (Figure 6). A STOP sign would also be installed outside the gate to control incoming traffic.

## **BICYCLE ACCESS**

Along with the traffic improvements discussed above, all of the build alternatives include improved bicycle access to the Park. A bicycle lane could be established on each side of East Fort Avenue to promote bicycle travel to and from the Fort. Once inside the Park, a bicycle lane would be delineated to allow safe access to a designated point where riders could secure their bicycles and visit the Park. These locations are described with the alternatives below.

## **WATER ACCESS**

Another element common to the build alternatives is a floating dock connected to the current fixed dock servicing privately-owned water taxis (Figure 7). There are safety and access issues associated with the present configuration of the fixed pier. When boats dock alongside the fixed pier, they continue to rise and fall with the tides while the dock remains motionless. Therefore the distance between the boat deck and the dock is constantly changing and does not meet ADA accessibility guidelines. The floating dock provides a constant freeboard relative to the boat's decks. The operator(s) can provide accessible portable gangways. The floating dock design also includes ramps to the fixed pier meeting accessible slope requirements at all tidal heights. Because the dock is City property, the NPS cannot make these changes, but can suggest that they be made to enhance access to the federal site.

Figure 6



Figure 7



## **TICKETING**

Under all of the build alternatives, fee collection and ticketing would be carried out immediately upon entering the new Education/Administration facility. This would be accomplished by directing visitors from the parking lot and other access points directly to the entrance of the new facility. Those visitors that are visiting the Park simply to use the Seawall Trail or other recreation along the waterfront would not be required to pay a fee under current policy, and could bypass the new facility. Each alternative described below would include landscaping designed to help direct visitors to the facility entrance.

## **BUS APRONS**

All of the build alternatives call for the construction of bus aprons adjacent to the proposed facilities. Though the layout and location of each apron varies depending on the alternative, the aprons provide easy access for buses to reach the facility and turn around. These aprons allow the project to continue to address pedestrian safety in and around the front gate and main parking lot. Each bus apron has been designed to reduce interaction between pedestrians and moving vehicles.

## **EMPLOYEE/VOLUNTEER PARKING**

As parking is a critical deficiency at the Park, the maintenance facility located to the north of the main gate would be demolished in all of the build alternatives. In its place, 22 new parking spaces would be established. These spaces would provide parking for employees and volunteers, and could be accessed through the back entranceway to the maintenance area. Additional “soft parking” would continue to be available adjacent to the metal maintenance building, along the south side of the main entrance. Soft parking is used to describe undeveloped grass or dirt covered areas that can be intentionally used for parking vehicles.

## **OFFSITE PARKING**

Another element common to all build alternatives is the option to seek additional parking offsite, especially during the peak season and special events. Fort McHenry would consider negotiating an agreement with the Maryland Port Authority for use of their parking lot immediately outside the front gate. The Park also shares legal jurisdiction with the Naval Reserve Center for Nimitz Road and the portion of the parking lot closest to the Park. An agreement with the Naval Reserve would provide further options for emergency egress and overflow parking during the peak season and special events.

## **MITIGATION**

To compensate for removed trees, replacements would be planted around the parking lot and the buildings in all alternatives. Plantings would be a mixture of deciduous and evergreen trees, preferably native species to Maryland and or species already present and flourishing at Fort McHenry. Examples would be Willow Oak (*Quercus phellos*); Red Maple (*Acer rubrum*); American Holly (*Ilex opaca*); and White Pine (*Pinus strobus*). Evergreen shrubs would be used to soften the building and maintain green throughout the year. Plantings would be designed to be low maintenance. The plantings would occur upon completion of

development. Species lost would be replaced, however it may take time for the new trees to fully mature. Once mature, the trees would offer direct replacements for the lost trees, though possibly in different locations.

Managing stormwater is also an effort that is common to all the build options. The quantity of water running over the surface of the land, and the pollutants it accumulates as it flows towards surrounding water bodies, would be controlled through a variety of low impact development techniques. Treatment efforts would be aimed at improving the quality of water discharged downstream from the site.

Stormwater management at Fort McHenry would be focused on Best Management Practices (BMPs) for collecting and treating roof and pavement runoff, as well as the use of green spaces around buildings and parking lot islands for water infiltration and treatment. Proposed stormwater management practices will be in accordance with Maryland Stormwater Management Guidelines for State and Federal Projects (MDE 2001), 2000 Maryland Stormwater Design Manual Volumes I & II (MDE 2000), and Maryland Chesapeake and Atlantic Coastal Bays Critical Area 10% Rule Guidance Manual (CWP 2003).

Based on the project size, and location of development, the BMPs would be designed to address the estimated 12 acres that would be included in, and around the areas of development. The location of the BMPs would be developed to carefully avoid any known or potential archeological resources. Initial locations would be proposed, and then undergo archeological investigations to ensure no resources would be impacted. If any resources were identified, a new location for the BMPs would be suggested. This process would continue until a location was selected that suited the site’s stormwater management needs while avoiding archeological resources.

All of these common elements are designed to address the planning issues described earlier in this document. Only after community support, landscape and viewsheds, safety, and stormwater management have been addressed can the specifics for the alternatives be laid out. The three build alternatives are described below. A summary of all of the alternatives is displayed in the table below.

| <b>Table 1: Summary of Key Alternative Elements</b> |  |   |   |                                 |                           |                          |
|---|--|---|---|---------------------------------|---------------------------|--------------------------|
|   | <b>Education/<br/>Administration<br/>Building Space</b>  | <b>Admin. Space<br/>Location</b>                                    | <b>Maintenance<br/>Location</b>   | <b>Parking<br/>Main<br/>Lot</b> | <b>Parking<br/>Other</b>  | <b>Parking<br/>Total</b> |
| <b>No Build<br/>Alternative</b>                     | The current Visitor Center is located in the center of the Park’s landscape covering 5,000 square feet with 5,700 square feet of usable space. | Located in the Fort, the Visitor Center, and the Mission 66 duplex. | Spread out along front wall at the metal maintenance building, the Mission 66 building, and the surrounding area. | 161 cars<br>6 buses             | 125 cars on grass lot (W) | 186 cars<br>6 buses      |

|                      |   |  |   |                                     |   |                                      |
|----------------------|---|--|---|-------------------------------------|---|--------------------------------------|
| <b>Alternative B</b> | Expand the current Visitor Center to cover approximately 12,100 feet, and provide 13,700 square feet of usable space.   | New facility south of front gate would cover approximately 3,400 square feet, and provide 5,600 square feet of usable space. | Consolidated in and around metal maintenance building. Option for a new building in the future. | 157 cars<br>7 buses<br>7 car or bus | 22 cars in new lot by front wall.   | 179 cars<br>7 buses<br>7 car or bus  |
| <b>Alternative C</b> | A new two-story structure would be constructed by the existing parking lot. It would cover approximately 12,800 square feet, and provide nearly 15,800 square feet of usable space.   | New facility south of front gate would cover approximately 3,400 square feet and provide 5,600 square feet of usable space.  | Consolidated in and around metal maintenance building. Option for a new building in the future. | 109 cars<br>7 buses<br>7 car or bus | 22 cars in new lot by front wall.<br>136 cars in new parking terrace (P). | 267 cars<br>7 buses<br>7 car or bus. |
| <b>Alternative D</b> | A new two-story building would be constructed adjacent to and overlapping the existing parking lot. It would cover 14,822 square feet of previously green space, and provide an estimated 20,042 square feet of usable space. | All administrative activities would be consolidated in the new education/administration facility.                            | Consolidated in and around metal maintenance building.  | 108 cars<br>7 buses<br>5 car or bus | 22 cars in new lot by front wall.<br>136 cars in new parking terrace (P). | 266 cars<br>7 buses<br>5 bus or car. |

(W) = The turf becomes unstable and unsafe in wet weather and is worn away in the summer.

(P) = The area would be paved and usable at all times and in all conditions.

## **ALTERNATIVE B – REHABILITATED VISITOR CENTER**

All of the actions proposed under Alternative B would be concentrated outside of the Fort’s 1814 reservation boundary. These actions include:

### **EDUCATION/ADMINISTRATION FACILITY**

**Alternative B** would rehabilitate and expand the current Visitor Center. Overall, the improvements would cover approximately 12,100 square feet. This would provide 13,700 square feet of usable space. The 12,100 square feet would be an increase of approximately 7,000 square feet over the current building. The existing facility would be expanded to the east with new restrooms, mechanical spaces, and classrooms. The bookstore would push out from the existing west wall. This would free the central space for the lobby, exhibits, and a theater facing the fort. Any larger expansion at this central location would jeopardize the integrity of the cultural landscape by taking up more historically open space with modern development.

The administrative functions located in the Fort would be removed, along with the NPS residence, to allow for more interpretation and to protect the buildings’ integrity. The NPS residence would be moved to the Mission 66 duplex, eliminating space currently used for administrative tasks. The size of the Education/Administration facility proposed under this alternative would not be large enough to house all of these offices. As a result, a new structure would be constructed on a rise just south of the main gate to support the Park’s administrative activities. The structure would cover approximately 3,400 square feet, and would provide an estimated 5,600 square feet of usable space. The main entry to be on the upper floor along with office spaces and a conference room. The floor below would have a break room opening on the maintenance yard and a large archive space. Parking for this facility would be provided in the lot created through the demolition of the maintenance facility.

To the east of the existing parking lot and new expanded education facility, a historic road trace would be delineated. The road trace would run alongside the historic footprint of three buildings (the Gun Shed and Storehouse), so they can be put into context and appropriately interpreted (Figure 8).

Finally, the restroom facilities adjacent to the parking lot would be removed. A new restroom facility would be constructed near the expanded Visitor Center. The new facility would be ADA accessible.

These actions would improve the visitor experience by offering more room for education and interpretive features within the expanded facility. The expanded building would provide more room for interpretive displays and larger crowds in the theater. This would improve the Park’s ability to reach a larger number of visitors and educate them about the history of Fort McHenry prior to walking the site.

### **MAINTENANCE AREA**

It is expected that the steady increase in visitation would continue to place demands on the park to create additional on-site parking. In order to create an additional parking area, the 1964 brick Maintenance facility located just north of the main entrance gate would be demolished. This Mission 66 structure was

Figure 8



deemed ineligible for nomination on the NRHP in 2003. Although demolition of this facility would result in a loss of valuable storage space and work areas for the maintenance staff, the area would provide space for 22 automobile parking stalls that are critical in relieving parking stresses throughout the Park.

Although the maintenance functions were not the focus of this project, a new facility could be developed without noticeably impacting natural or cultural resources. The park could replace those functions in a new facility that would be located just south of the main entrance road adjacent to the recently completed maintenance building. This new structure would be designed to provide room for office spaces, a workshop area, controlled inventory storage, and a conference room, as in the current structure that would be demolished. The building would be surrounded by additional parking spaces, a service yard for parking maintenance vehicles, and space allotted for future expansion of the maintenance area. The entire area would be screened with vegetation. Locating this new facility adjacent to the metal building would allow the park's maintenance operation to be consolidated at one location.

## **PARKING**

Under this alternative, the parking lot would be realigned to include space for the bus apron and bicycle parking area described in "elements common to the build alternatives" section of this document. Overall, there would be 179 permanent automobile stalls under the proposed realignment. This would create permanent space for 157 automobiles and seven bus stalls. An additional seven buses could be parked in the automobile parking area when the lot was not filled to capacity. This would create 18 more automobile spaces, one permanent bus space, and seven optional bus spaces compared to current conditions. This increase includes the 22 spaces created in place of the demolished maintenance building. The grass overflow lot would be maintained with space for 125 automobile stalls. The parking lot would be surrounded with vegetation and landscaping to direct visitors towards the expanded facility (Figure 8a).

## **MITIGATION**

In order to address stormwater mitigation for these developments, a bioretention system, possibly comprised of multiple components, for this alternative would require a total land surface allocation of approximately 15,000 SF. This mitigation would be carefully planned to ensure any adverse impacts to archeological or other resources would be avoided. These techniques are described in more detail in the "Elements Common to the Build Alternatives" section of this chapter, under "Mitigation," (See page 33).

## **PROJECT COST & SCHEDULE**

The estimated gross construction Class "C" Cost Estimate for Alternative B is approximately \$8,300,000 in FY 2004 dollars. This project will need to be approved for funding by the National Park Service by the year 2010. Partners' fundraising efforts will need to be completed by 2009 in order for the facility to be constructed in time for the Bicentennial in 2012. The project will be considered in accordance with the NPS's line-item construction review process outlined above. The NPS has many needs for limited line-item construction funds and there is no guarantee that this project will be fully funded and completed by

the proposed target date of September 2012. It is anticipated that this project will be a partnership project, and as such will have to be in compliance with the NPS partnership process outlined below:

Phase I – Initial Phase (Currently Underway)

- Identify and acquire and authorization for planning of construction project
- Notify and involve public
- Finalize Development Concept Plan

Phase II – Project Identification (Approximately 1 year)

- Prepare a Project Statement for construction of a facility to be reviewed and prioritized at regional and national levels
- Identify potential partners
- Prepare and finalize Letter of Intent between the NPS and project partners
- Get approval of the project by the Regional Director of the Northeast Region of the NPS
- Complete NPS Development Advisory Board review of the project
- Consult with Congress about the project

Phase III – Agreement Phase (Approximately 1 year)

- Prepare Fundraising Agreement and Communication Plan to be reviewed and approved by the Director of the National Park Service
- Consult with Congress about the project

Phase IV – Development Phase (Approximately 2 years)

- Begin fundraising activity
- Prepare, review and get approval for pre-design and schematic design from NPS Development Advisory Board
- Complete fundraising efforts

Phase V – Implementation Phase (Approximately 2-1/2 years)

- Complete final design (Approximately 1 year)
- Construction (Approximately 18 months)

Fort McHenry will play a key role in the upcoming international Bicentennial commemoration of the War of 1812 and it is a park goal to have this project completed in time for the celebration (2012-2015). Achieving this goal is dependent upon the priority placed on this project not only by the park, but also the region and headquarters level of NPS after considering many other construction and operational needs facing the Service.

Currently, this project is not included on the National Park Service's prioritized list for its five year line-item construction program and the project will have to continue to compete with other National Park Service priority projects for funding. Nevertheless, the National Park Service is going ahead with this report in fulfillment of its compliance activities in the event that adequate partnership and / or National Park Service funding is obtained.

Figure 8a



## **ALTERNATIVE C – CAMPUS PLAN**

All of the actions proposed under Alternative C would be concentrated outside of the Fort’s 1814 reservation boundary. These actions include:

### **EDUCATION/ADMINISTRATION FACILITY**

Under **Alternative C**, a new, two-story facility would be constructed between the parking lot and the water, beyond the historic road trace (Figure 9), and would cover approximately 12,800 square feet of previous green space. The new facility would be a long, narrow building on the flat ground between the historic road trace and the existing parking lot. The building facilities would extend from the theater at the (Figure 8A) southern end facing the fort to the exterior public restrooms to the north. Education spaces and collection staff offices would be located on the second floor. An estimated 15,800 square feet of floor space would be created under this alternative. At its highest point, this facility would be 30 feet above ground level (NGVD). The restrooms for this alternative would be constructed alongside the vending area, and would be ADA accessible. Additional restrooms would be available within the main facility.

As in **Alternative B**, a new administrative facility would be constructed by the front gate. The structure would cover approximately 3,400 square feet and provide an estimated 5,600 square feet of usable space. The administrative building would be set into a rise just south of the main gate, and adjacent to the back wall. This would allow the main entry to be on the upper floor along with office spaces and the conference room. The floor below would have a break room opening onto the maintenance yard, and a large archive space. By separating these functions, the Park could dedicate more space in the main facility to education and interpretation. Parking for the administration building would be provided in the lot created through the demolition of the maintenance facility.

As in **Alternative B**, the historic road trace would be developed in connection with the delineated historic footprints of buildings that existed just outside the Fort during the 1814 era. The facility’s location would not only lend itself to increased interpretation of this road trace, but also of the history and resources along the water. The road trace would lead visitors from the new facility toward the historic Fort.

The overall visitor experience would be greatly enhanced under this alternative. The new facility would provide space for interpretation, education, and a larger theater. Furthermore, the structure would be removed from the Park’s historic landscape, improving visitor understanding and first impressions of the site.

### **MAINTENANCE AREA**

It is expected that the steady increase in visitation would continue to place demands on the Park to create additional on-site parking. In order to provide more room for parking, the 1964 brick Maintenance facility located just north of the main entrance gate would be demolished to create an additional parking area. This Mission 66 structure was deemed ineligible for nomination on the NRHP in 2003. Although demolition of this facility would result in a loss of valuable storage space and work areas for the

maintenance staff, the area would provide space for 22 automobile parking stalls that are critical in relieving parking stresses throughout the Park.

Although the maintenance division functions were not the focus of this project, a new facility could be developed without noticeably impacting natural or cultural resources. The park could replace those functions in a new facility that would be located just south of the main entrance road adjacent to the recently completed maintenance building. This new structure would be designed to provide room for office spaces, a workshop area, controlled inventory storage, and a conference room, as in the current structure that would be demolished. The building would be surrounded by additional parking spaces, a service yard for parking maintenance vehicles, and space allotted for future expansion of the maintenance

area. The entire area would be screened with vegetation. Locating this new facility adjacent to the metal building would allow the park's maintenance operation to be consolidated at one location.

## **PARKING**

As in **Alternative B**, the parking lot would be realigned to provide room for a bus apron and bicycle parking area adjacent to the new facility. Under this alternative, 131 parking spaces would be available in the parking lot and in the employee/volunteer lot by the front wall, 109 of which would be in the main parking lot. This would constitute a loss of 52 spaces from the current conditions in the main parking lot. However, under this alternative, the grass overflow parking area could be developed into a permanent, paved, parking terrace. This would create an additional 136 permanent automobile parking stalls (Figure 9a). This would supplement the modified lot, and continue to increase capacity for peak visitation seasons.

Bus parking would continue to be available in the main parking lot. Under **Alternative C**, seven permanent bus stalls would be established. An additional seven buses could be parked in automobile stalls when available. The parking lot would be surrounded with vegetation and landscaping to direct visitors towards the new Education/Administration facility (Figures 9b).

## **MITIGATION**

In order to address stormwater mitigation for these developments, a bioretention system, possibly comprised of multiple components, for this alternative would require a total land surface allocation of approximately 20,000 SF. This mitigation would be carefully planned to ensure any adverse impacts to archeological or other resources would be avoided. These techniques are described in more detail in the "Elements Common to the Build Alternatives" section of this chapter, under "Mitigation," (See page 33).

Figure 9



## **PROJECT COST & SCHEDULE**

The estimated gross construction Class “C” Cost Estimate for Alternative C is approximately \$10,100,000 in FY 2004 dollars. The project would follow the schedule outlined under Alternative B.

Fort McHenry will play a key role in the upcoming international Bicentennial commemoration of the War of 1812 and it is a park goal to have this project completed in time for the celebration (2012-2015). Achieving this goal is dependent upon the priority placed on this project not only by the park, but also the region and headquarters level of NPS after considering many other construction and operational needs facing the Service.

Currently, this project is not included on the National Park Service’s prioritized list for its five year line-item construction program and the project will have to continue to compete with other National Park Service priority projects for funding. Nevertheless, the National Park Service is going ahead with this report in fulfillment of its compliance activities in the event that adequate partnership and / or National Park Service funding is obtained.

## **ALTERNATIVE D – EDUCATION/ADMINISTRATION BUILDING (NPS PREFERRED ALTERNATIVE)**

All of the actions proposed under Alternative D, the NPS Preferred Alternative, would be concentrated outside of the Fort’s 1814 reservation boundary. These actions include:

### **EDUCATION/ADMINISTRATION FACILITY**

**Alternative D** presents the proposed action and defines the rationale for the action in terms of resource protection and management, visitor and operational use, and cost. Under this alternative, the facility would be a two-story building set just west of the historic road trace which would be delineated as in the

other build alternatives. The building would include the bookstore and service functions on one side and the exhibit and theater on the other. Classrooms and the administrative functions would be on the second floor. This facility would provide enough space for all of the Park’s administrative offices to be consolidated removing the need for a separate administration building.

The new Education/Administration facility could create up to a 14,822 square foot footprint on land that was previously green space (Figure 10). It would consist of an estimated 20,042 square feet of usable space. At the structure’s highest elevation, the facility would be approximately 35 feet above ground level (NGVD). In order to limit impacts to green space, part of the new facility would be placed in the current parking lot. This would result in the displacement of 52 automobile parking spaces. Such a displacement would require an increase in the use of multimodal transportation to bring visitors to the site during peak visitation seasons.

A bus apron and bicycle parking area would be located on the eastern edge of the parking lot. This area would correspond with the entranceway to the new facility. Vegetation and landscaping would be developed to screen

the parking lot from the rest of the Park and direct visitors towards the new facility entrance. The pathway from the boat dock would also lead to the entrance of the facility.

As in **Alternative C**, restroom facilities would be constructed alongside the vending area. Additional restrooms would exist in the main facility as well. As in the other build alternatives, the historic road trace would be developed.

## **MAINTENANCE AREA**

The other two action alternatives consider the potential for future development within the maintenance area. However, based on the size of the proposed Education/Administration facility in this alternative, the Park would not seek to develop any other structures under this scope. The maintenance building to the north of the Park entrance would still be demolished and replaced with 22 employee/volunteer parking spaces. No immediate plans would be made to increase the maintenance yard. However, a new project, outside of this scope and funding, could create a new maintenance building adjacent to the current metal maintenance building.

## **PARKING**

To offset the parking spaces displaced by the building and to accommodate existing growth, two parking options have been developed for **Alternative D**.

### **PARKING OPTION 1**

Under this option, 108 parking spaces would be available for car parking in the main lot. This constitutes a loss of 52 spaces. The realigned parking lot would include space for seven bus parking spaces. An additional five buses could be parked in the automobile parking spaces when available. A screened service parking area would exist in the northeast corner of the parking lot. This would allow service vehicles access to the vending and restroom area without disturbing the park atmosphere.

However, as under **Alternative C**, the grass overflow parking area could be developed into a permanent, paved, parking terrace. This would create an additional 136 permanent automobile parking stalls (Figure 9a). This would supplement the modified lot, and continue to increase capacity for peak visitation seasons. The impacts for this option are assessed throughout this document under **Alternative C**.

Figure 9A



Figure 9B



Bus parking would continue to be available in the main parking lot. Under this option, seven permanent bus stalls would be established. An additional seven buses could be parked in automobile stalls when available. The parking lot would be surrounded with vegetation and landscaping to direct visitors towards the new Education/Administration facility (Figure 9).

#### **PARKING OPTION 2**

Another option to accommodate increases in visitation and vehicular traffic would be development of a parking terrace in the grass overflow lot. The parking terrace concept would be designed to preserve green space while providing parking and easy access to the visitor facilities. The parking terrace could be built as a simple rectangle. The terrace would provide an additional 136 automobile stalls. The internal layout of the parking spaces would be accessed by a loop circulation. The concrete floor would be essentially flat with a maximum grade of 2% or less. The roof would also be concrete and parallel to the floor beneath. The parking terrace would be tucked into the existing slope so that the grass topped roof would blend into the natural grades just below the tree lined entrance road to the south (Figure 10a). The north and long side of the rectangle would be daylighted. The daylighted side would also screen off the military vehicles in the Naval Reserve parking area.

The existing topography and geometry of the Park roadways would allow the simple parking terrace to be developed without a lot of complicated ramps and stairways. The top of the parking terrace would be grass in a 12-inch deep topsoil cover over the roof membrane on the concrete roof structure. This grass topped technology has been successful at Arlington Gateway Park which spans over Interstate-66 in Virginia. Photovoltaic cells could provide power for night lighting. The parking areas would be surrounded with vegetation and landscaping to direct visitors towards the new education/administration facility (Figure 10b). The impacts for this option are assessed throughout this document under Alternative D.

#### **MITIGATION**

In order to address stormwater mitigation for **Alternative D**, a bioretention system, possibly comprised of multiple components, for this alternative would be required. If Parking Option 1 is selected, a bioretention system would require a total land surface allocation of approximately 20,000 square feet. If Parking Option 2 is chosen, the bioretention system would require an allocation of approximately 14,000 square feet. This mitigation would be carefully planned to ensure any adverse impacts to archeological or other resources would be avoided. These techniques are described in more detail in the “Elements Common to the Build Alternatives” section of this chapter, under “Mitigation,” (See page 33).

#### **PROJECT COST & SCHEDULE**

The estimated gross construction Class “C” Cost Estimate for Alternative D with the roofed parking terrace is approximately \$12,100,000 in FY 2004 dollars. The estimated gross construction Class “C” Cost Estimate for Alternative D with the parking terrace is approximately \$9,800,000 in FY 2004 dollars. The project would follow the schedule outlined under Alternative B.

Fort McHenry will play a key role in the upcoming international Bicentennial commemoration of the War of 1812 and it is a park goal to have this project completed in time for the celebration (2012-2015). Achieving this

goal is dependent upon the priority placed on this project not only by the park, but also the region and headquarters level of NPS after considering many other construction and operational needs facing the Service.

Currently, this project is not included on the National Park Service's prioritized list for its five year line-item construction program and the project will have to continue to compete with other National Park Service priority projects for funding. Nevertheless, the National Park Service is going ahead with this report in fulfillment of its compliance activities in the event that adequate partnership and / or National Park Service funding is obtained.

## **ALTERNATIVES CONSIDERED BUT DISMISSED**

The following alternatives were considered during the early stages of the planning process, but were rejected following NPS Choosing By Advantages (described under Brief History of Public Involvement) based on their inability to meet the purpose of the project, their similarity to other alternatives, and conflicts with the Park's purpose and significance. The Value Analysis measured the benefits associated with various design options. The ratings given to these options led to the selection of the alternatives described above. Those alternatives that were dismissed may still hold some potential as development options for the alternatives described above.

One option would be to carry out the design described in **Alternative C**. However, under this modification the new facility would be constructed on the east side of the historic road trace, closer to the water. This option would not make use of existing disturbed area but would impact more green space. This option was dismissed based on its similarity to **Alternative C**.

Another option would be very similar to **Alternative D**. However, under this modification the new facility would be constructed on the east side of the historic road trace closer to the water. This design would not make use of already disturbed land. It would, however, reduce impacts to the current parking layout. This option was dismissed based on its similarity to **Alternative D**, and the potential for increased environmental impacts.

These design options would also occur within the Fort's 1814 reservation boundary. This location would impact Fort McHenry's cultural landscape and interpretive agenda. This would conflict with the Park's purpose and significance. Therefore, these design options were dismissed based on their inability to meet the purpose of the project, their similarity to other alternatives, and conflicts with the Park's purpose and significance.

Figure 10



Figure 10A



Figure 10B



Several circulation routes were also analyzed, but dismissed based on their inability to meet the project's purpose and need. One such option would create a one-way loop through the Park. The main Park road would be narrowed and bring visitors into the Park. A new, narrow exit road would be constructed to lead vehicles from the parking lot, along the north edge of the Park, and exit through the current maintenance entrance just north of the main gate.

Another circulation option would also make the entrance road one-way. This would lead vehicles to the parking lot. From the parking lot, an exit would lead vehicles across the northern edge of the property onto Nimitz Road. Under this option, the Park would share access with the Naval Reserve.

A final alternative would also make the Park entrance road one-way. The exit road would run north of the entrance road, along the northern boundary of the Park. It would then reconnect with the entrance road just before reaching the Mission 66 duplex, creating a two-way entrance/exit.

Another dismissed alternative involved forming a partnership or acquiring a neighboring property to use for curatorial storage, or additional administrative, or visitor services. The properties considered were the Maryland Port Administration (MPA) parking lot, Erasmus Properties LLC, the Army Corps of Engineers and the United States Naval Reserve. Options to acquire these properties were temporarily dismissed based on their infeasibility. However, if these properties become available in the future, Fort McHenry would consider acquiring them.

## **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The Environmentally Preferred Alternative is defined by the Council on Environmental Quality as “the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act [Section 101 (b)].” Section 101 (b) states that the Environmentally Preferred Alternative should:

- 1) Fulfill the responsibilities of each generation as trustees of the environment for succeeding generations.
- 2) Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- 3) Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- 4) Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- 5) Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities. and
- 6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Fort McHenry is located in the Locust Point area of Baltimore City. It sits along the heavily developed Baltimore Harbor. Fort McHenry is one of the most consolidated green spaces in the region. Preserving this green space is a desire of the Park staff, the project team, and the surrounding community. All the

proposed alternatives would meet **Criterion 1. Alternatives B, C, and D** would be designed to minimize loss of green space and maintain recreational areas along the waterfront.

In conjunction with preserving green space, **Alternatives B, C, and D** also seek to ensure healthful, productive, and aesthetically and culturally pleasing surroundings (**Criterion 2**). All of the proposed alternatives seek to achieve this balance in varying ways. The **No Build Alternative** would maintain the Park as it is, continuing to provide aesthetic and cultural resources. Under this alternative, Park offices would remain in the Star Fort, infringing upon the historic surroundings. This alternative, however, does not provide ADA accessible restrooms in the Visitor Center. **Alternative B** would seek to enhance the Park's ability to interpret its cultural resources in a safe and productive manner by increasing the size of the current Visitor Center and enhancing its ADA accessibility. While this may increase interpretation of cultural resources, it may decrease the aesthetics and cultural landscape within the Park with the larger facility existing in important viewsheds and landscapes. **Alternative C** would enhance interpretation of cultural resources within the Park, as done in **Alternative B**. However, **Alternative C** would further enhance aesthetics and cultural landscapes in the Park by removing the current Visitor Center from important viewsheds and aligning it with the developed adjacent properties. **Alternative D**, the NPS Preferred Alternative, would provide similar enhancements as **Alternative C**. This alternative, however, would require a larger facility to be constructed. Such a facility may impose on the Park's aesthetics more than **Alternative C**, but would not infringe upon important viewsheds. By consolidating Park operations in this building, the overall aesthetics of the Park would be improved, as other buildings and development would be limited.

The **No Build Alternative** would not attempt to enhance the Park's ability to attain the widest range of beneficial uses of the environment (**Criterion 3**). Nor would it provide ADA accessible restrooms in the Visitor Center or space for educational programs. **Alternative B** would seek to do this by enhancing the current Visitor Center and use already disturbed land in the maintenance yard for further development. This would enhance the Park's beneficial uses providing a relatively small impact to the surrounding environment. It would, however, impact the Park's cultural landscape and important viewsheds by increasing the size of the Visitor Center at its present location. **Alternative C** would avoid this undesirable impact by locating the new facility adjacent to the existing parking lot. Although this area is currently undisturbed, the surrounding built-up properties have been altered to such an extent that the impact would seem minimal and fitting to that portion of the property. A number of unearthed archeological resources exist in the area of new construction, so it would require investigation prior to development. **Alternative D** would exceed **Alternative C's** ability to meet **Criterion 3**. By consolidating all of the Park's resources in one facility and enhancing alternative transportation methods, the Park would be better equipped to attain the widest range of benefits.

Currently, the Park works to preserve important historic, cultural, and natural aspects of our national heritage and provide a wide variety of choices to its visitors (**Criterion 4**). Both **Alternative B, C, and D** would enhance the Park's ability to preserve these resources and provide the visitors with improved services. **Alternative B** would do so by providing greater space for interpretation of resources within the Visitor Center. It would also improve interpretive and educational opportunities within the Fort by removing Park offices. **Alternative C** would meet the criterion by providing even more space for

interpretation and educational activities, while opening up the Park's viewshed and cultural landscape for better understanding and appreciation. **Alternative D** would do the same as **Alternative C**, but would also consolidate all of the project development in one place and provides space for the greatest number of choices for the visitor.

It is the goal of the Park and this project to maintain the green space and variety of opportunities at Fort McHenry. As part of that goal, all of the proposed alternatives would maintain a balance between population and resource that would maintain high standards of living (**Criterion 5**). **Alternative D** would best meet this criterion by enhancing multimodal transportation as a means of reaching visitors, rather than relying on extensive paved areas in or around the Park.

Renewable resources, those that are naturally replaced, would not be impacted under any of the proposed alternatives (**Criterion 6**). However, some depletable resources would be impacted. All three of the build alternatives would result in the loss of grass, trees, and/or shrubs. While the loss of the trees and shrubs could be mitigated with new plantings, they would still constitute a loss of a resource. The new plantings would work to buffer the development from the surrounding water resources. BMPs would also be installed to further protect the surrounding water resources. Water resources are another important depletable resource. While the loss of vegetation at the site can be mitigated, the continual loss of water quality cannot. Currently, the Park does not have BMPs working to reduce stormwater. The build alternatives would install BMPs and vegetative buffers to enhance stormwater discharge and thus reduce pollutant loads entering the surrounding waterways. The loss of some grass in the Park is outweighed by the vast benefits that stormwater management would provide.

As the NPS Preferred Alternative, **Alternative D** best meets the purpose and need of this project. As the environmentally preferred alternative, it would best meet the criteria listed above. The size of the facility would provide the most space for interpretation and education to continue the Fort McHenry story to future generations. It would also consolidate development within the Park, to provide the most opportunities for the future of the site, as well as allowing the remaining portions of the Park to be maintained in an aesthetically pleasing manner. By consolidating development in a corner of the Park, near other offsite development, **Alternative D** does the most to preserve historic, cultural, and natural resources throughout the Park. Avoiding these resources, and providing ample space for interpretation and education, would allow Fort McHenry to find the best balance between a high standard of living and sharing of the Park's resources. Finally, **Alternative D** does the best at protecting depletable resources by creating the most manageable and successful stormwater management. Therefore, the environmentally preferred alternative is **Alternative D**. Of the two parking options within **Alternative D**, Parking Option 2 (the grass covered terrace), fulfills the criteria for the environmentally preferred alternative better than parking option 1.

Table 2 provides a summary of the environmental consequences related to each alternative. A more detailed explanation of the impacts is presented in Chapter 4.

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>             | <b>Alternative A</b>                                  | <b>Alternative B</b>   | <b>Alternative C</b>  | <b>Alternative D</b>   |
|-----------------------------|---|--|---|--|
| <b>Soils and Topography</b> | The alternative would have no impact on the resource. | Approximately 30,000 square feet of soil would be impacted by the expansion of the Visitor Center and construction of the new administration facility. Additional impacts would occur with demolition of the old facility and parking lot development. Stormwater BMPs would result in the excavation of 60,000 cubic feet of soil. The overall impact would be long-term, minor, and adverse. | Approximately 84,700 square feet of soil would be impacted with the demolition of the maintenance facility and Visitor Center, construction of the new education facility and administration building, and development of the parking terrace. Stormwater BMPs would result in the excavation of 80,000 cubic feet of soils. The overall impact would be long-term, minor, and adverse. | Approximately 77,400 square feet of soil would be impacted with demolition of the maintenance facility and Visitor Center, and construction of the new facility and parking terrace. Stormwater BMPs would result in approximately 56,000 cubic feet of excavated soil. The overall impact would be long-term, minor, and adverse. |
| <b>Vegetation</b>           | The alternative would have no impact on the resource. | Approximately 36,100 square feet of lawn area would be impacted and 25-30 trees would be removed; additional planting would partially mitigate the loss. The overall impact would be long-term, minor, and adverse.  | Approximately 86,800 square feet of lawn area would be impacted and 40-50 trees would be removed; additional planting would partially mitigate the loss. The overall impact would be long-term, moderate, and adverse.  | Approximately 20,300 square feet of lawn area would be impacted and 60-70 trees would be removed; additional planting would partially mitigate the loss. The overall impact would be long-term, minor, and adverse.  |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>                                     | <b>Alternative A</b>  | <b>Alternative B</b>   | <b>Alternative C</b>  | <b>Alternative D</b>  |
|---|---|--|---|---|
| <b>Floodplains</b>                                  | No new development would occur within the floodplain. Structures currently within the floodplain would remain. The overall impact would be long-term, negligible and adverse. | Structures currently within the floodplain would remain. The realigned roadway/parking lot would intrude an estimated 750 square foot into the 500-year floodplain. All other development would remain outside the floodplain. The overall impact would be long-term, negligible, and adverse. | Approximately 2,400 square feet of the new facility would be located within the 500-year floodplain. Structures within the floodplain would remain. The overall impact would be long-term, negligible, and adverse. | Approximately 600 square feet of the new facility would be located within the 500-year floodplain. Structures within the floodplain would remain. The overall impact would be long-term, negligible, and adverse. |
| <b>Surface Waters and Chesapeake Bay Resources*</b> | No changes would be made that would impact surface waters or Chesapeake Bay resources. The overall impact would be long-term, negligible, and adverse.                        | Approximately 15,500 square feet of impervious surface would be created. Mitigation efforts would compensate for these increases. The overall impact would be long-term, minor, and beneficial.  | An estimated 66,800 square feet of impervious surface would be created. Mitigation efforts would compensate for these increases. The overall impact would be long-term, minor, and beneficial.                      | An estimated 14,900 square feet of impervious surface would be created. Mitigation efforts would compensate for these increases. The overall impact would be long-term, minor, and beneficial.                    |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>            | <b>Alternative A</b>   | <b>Alternative B</b>  | <b>Alternative C</b>   | <b>Alternative D</b>   |
|----------------------------|--|---|--|--|
| <b>Hazardous Materials</b> | Hazardous materials currently within the Park would remain; no new materials would be introduced. The overall impact would be long-term, negligible, and beneficial. | Remodeling the current Visitor Center and demolition of the Mission 66 maintenance building would require safety precautions to guard against asbestos containing material and lead-based paint. The overall impact would be long-term, moderate, and beneficial. | Demolition of the current Visitor Center and the Mission 66 maintenance building would require safety precautions to guard against asbestos containing material and lead-based paint. The overall impact would be long-term, moderate, and beneficial. | Demolition of the current Visitor Center and the Mission 66 maintenance building would require safety precautions to guard against asbestos containing material and lead-based paint. The overall impact would be long-term, moderate, and beneficial. |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>                | <b>Alternative A</b>                                  | <b>Alternative B</b>  | <b>Alternative C</b>  | <b>Alternative D</b>  |
|--------------------------------|---|---|---|---|
| <b>Archeological Resources</b> | The alternative would have no impact on the resource. | Development would occur in the area of several known archeological resources, none of which date to 1814. No significant impacts would occur and an archeologist would be on site during the work. The overall impact would be long-term, negligible to minor, and adverse.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative B would have <b>no adverse effect</b> on archeological resources. | Development would occur in the area of several known archeological resources, none of which date to 1814. No significant impacts would occur and an archeologist would be on site during the work. The overall impact would be long-term, minor, and adverse.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative C would have <b>no adverse effect</b> on archeological resources. | Development would occur in the area of several known archeological resources, none of which date to 1814. No significant impacts would occur and an archeologist would be on site during the work. The overall impact would be long-term, minor, and adverse.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative D would have <b>no adverse effect</b> on archeological resources. |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>            | <b>Alternative A</b>   | <b>Alternative B</b>  | <b>Alternative C</b>   | <b>Alternative D</b>   |
|----------------------------|--|---|--|--|
| <b>Historic Structures</b> | The historic Star Fort would continue to be used for administrative uses, placing additional pressure on the aging structure. The overall impact would be long-term, minor, and adverse. | The expanded Visitor Center would provide more room for Park offices. The overall impact would be long-term, minor, and beneficial.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative B would have <b>no adverse effect</b> on historic structures. | The new facility would provide more room for Park offices. The overall impact is long-term, minor, and beneficial.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative C would have <b>no adverse effect</b> on historic structures. | The new facility would provide more room for Park offices. The overall impact is long-term, minor, and beneficial.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative D would have <b>no adverse effect</b> on historic structures. |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>            | <b>Alternative A</b>   | <b>Alternative B</b>  | <b>Alternative C</b>   | <b>Alternative D</b>  |
|----------------------------|--|---|--|---|
| <b>Cultural Landscapes</b> | <p>The current landscape would remain intact with the Visitor Center in the center of the landscape, obscuring historical significant features. The Fort and its 1814 reservation boundary would remain untouched. The overall impact would be long-term, negligible, and adverse.</p> | <p>The Fort and its 1814 features within the 1814 reservation boundary would remain intact. Development would expand towards the Fort, impacting historic visual relationships. The overall impact would be long-term, minor, and adverse.</p> <p><i>Section 106 Summary</i><br/>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative B would have <b>no adverse effect</b> on cultural landscapes.</p> | <p>The Fort and its 1814 features within the 1814 reservation boundary would remain intact. The new buildings would be sized compatible with the character of the cultural landscape. The overall impact would be long-term, minor to moderate, and beneficial.</p> <p><i>Section 106 Summary</i><br/>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative C would have <b>no adverse effect</b> on cultural landscapes.</p> | <p>The fort and its 1814 boundary would remain intact. The proposed scale and design of the new building will be compatible and in character with the historic features of the cultural landscape, the overall impact would be long term minor and beneficial.</p> <p><i>Section 106 Summary</i><br/>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative D would have <b>no adverse effect</b> on cultural landscapes.</p> |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>           | <b>Alternative A</b>  | <b>Alternative B</b>   | <b>Alternative C</b>  | <b>Alternative D</b>  |
|---------------------------|---|--|---|---|
| <b>Museum Collections</b> | The current collection facility would be maintained. The overall impact would be long-term, negligible, and beneficial. | The powder magazine would be maintained as the primary collection facility. Those items stored in the Fort would be moved to space in the expanded Visitor Center. The overall impact would be long-term, moderate, and beneficial.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative B would have <b>no adverse effect</b> on museum collections. | The powder magazine would be maintained as the primary collection facility. Those items stored in the Fort would be moved to space in the new facility. The overall impact would be long-term, moderate, and beneficial.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative C would have <b>no adverse effect</b> on museum collections. | The powder magazine would be maintained as the primary collection facility. Those items stored in the Fort would be moved to space in the new facility. The overall impact would be long-term, moderate, and beneficial.<br><br><i>Section 106 Summary</i><br>After applying the ACHP's criteria of adverse effects (36 CFR Part 800.5, Assessment of Adverse Effects), the NPS concludes that implementation of Alternative D would have <b>no adverse effect</b> on museum collections. |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>                   | <b>Alternative A</b>   | <b>Alternative B</b>  | <b>Alternative C</b>  | <b>Alternative D</b>  |
|-----------------------------------|--|---|---|---|
| <b>Visual Resources</b>           | No changes would be made that would alter visual resources.                | The maintenance area would be improved and screened from view. The enlarged Visitor Center would further impede upon visual resources at the Park. The overall impact would be long-term, minor, and adverse.   | The Visitor Center would be removed and located in an area that would not impede on visual resources, opening views of the Park and water. The maintenance area would also be screened. The overall impact would be long-term, moderate, and beneficial.            | The Visitor Center would be removed and located in an area that would not impede on visual resources, opening up views of the Park and water. The maintenance area would not be improved. The overall impact would be long-term, minor, and beneficial.             |
| <b>Visitor Use and Experience</b> | No changes would be made that would impact the current visitor experience. | The enhancements to the Visitor Center would create more room for the theater, as well as waiting and viewing interpretive exhibits. Additional parking and improved road design would reduce congestion. The overall impact would be long-term, moderate and beneficial. | A new facility would be constructed with enough space for a new theater and more interpretive exhibits. Improvements to the parking and main road would reduce congestion and improve circulation. The overall impact would be long-term, moderate, and beneficial. | A new facility would be constructed with enough space for a new theater and more interpretive exhibits. Improvements to the parking and main road would reduce congestion and improve circulation. The overall impact would be long-term, moderate, and beneficial. |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>                           | <b>Alternative A</b>  | <b>Alternative B</b>   | <b>Alternative C</b>   | <b>Alternative D</b>   |
|---|---|--|--|--|
| <b>Park Operations and Infrastructure</b> | No changes would be made that would impact operations or infrastructure.  | The enhanced Visitor Center would allow for consolidation of park operations out of the Fort. The Park would also obtain an easement to provide water and sewer service for the entire maintenance yard. The overall impact would be long-term, minor, and beneficial. | The new facility would allow for consolidation of park operations out of the Fort. The Park would also obtain an easement to provide water and sewer service for the entire maintenance yard. The overall impact would be long-term, minor, and beneficial.        | The new facility would allow for consolidation of park operations out of the Fort. The Park would also obtain an easement to provide water and sewer service for the entire maintenance yard. The overall impact would be long-term, moderate, and beneficial.     |
| <b>Transportation</b>                     | Other projects around the front gate and outside the Park walls would enhance safety for pedestrians, bicyclists, and vehicles. Overall trips to Fort McHenry and the surrounding area would increase. The overall impact would be long-term, minor, and adverse. | Improvements around the front gate and outside the Park walls would enhance safety for vehicles, pedestrians, and bicyclists. Overall trips to Fort McHenry and the surrounding area would increase. The overall impact would be long-term, minor, and beneficial.     | Improvements around the front gate and outside the Park walls would enhance safety for vehicles, pedestrians, and bicyclists. Overall trips to Fort McHenry and the surrounding area would increase. The overall impact would be long-term, minor, and beneficial. | Improvements around the front gate and outside the Park walls would enhance safety for vehicles, pedestrians, and bicyclists. Overall trips to Fort McHenry and the surrounding area would increase. The overall impact would be long-term, minor, and beneficial. |

**Table 2 Summary of Environmental Consequences**

| <b>Resource</b>                    | <b>Alternative A</b>   | <b>Alternative B</b>   | <b>Alternative C</b>  | <b>Alternative D</b>  |
|------------------------------------|--|--|---|---|
| <b>Circulation and Site Access</b> | No physical modifications would be made to the Park entrance road or parking area. Overflow parking use would increase. The overall impact would be long-term, minor to moderate, and adverse. | The bicycle lanes would be striped on the entrance road, automobile and bus parking would be expanded, and ATS partnerships would be implemented potentially reducing automobile traffic by 4%. There would be a net increase in automobile parking stalls from 161 to 179. The overall impact would be long-term, moderate, and beneficial. | Similar improvements described in Alternative B would be made. The overall net impact is to increase parking capacity from 161 to 267 automobile stalls. The overall impact would be long-term, moderate, and beneficial. | Similar improvements described in Alternative B would be made. The overall net impact is to increase parking capacity from 161 to 244 automobile stalls. The overall impact would be long-term, moderate, and beneficial. |
| <b>Local Economy and Land Use</b>  | No changes would be made to the current resources.   | No changes would be made to the current resources.   | No changes would be made to the current resources.  | No changes would be made to the current resources.  |

- The project area is located within the Chesapeake Bay Critical Area. All build alternatives would impact this area and require special consideration.

# AFFECTED ENVIRONMENT

## INTRODUCTION

Fort McHenry National Monument and Historic Shrine occupies 43 acres in Baltimore City. The Park sits on a mile long peninsula at the confluence of the Patapsco River and the Northwest Branch River. The site's location on the peninsula provides an isolated green space in a highly urbanized area. Known as Locust Point, this area consists of a small residential community, local businesses, factories, terminals, shipyards, and industrial warehouses adjacent to the CSX railroad yard. As a result, Fort McHenry receives a great deal of attention for its educational, aesthetic, and recreational opportunities.

This chapter describes the existing environmental conditions in and around the project site. The chapter is organized by resource topic, and the existing conditions are described for each topic. Detailed information on resources in Fort McHenry National Monument & Historic Shrine may be found in the *Resource Management Plan* (1999) and other studies done within the Park. A summary of the resources associated with this project follows.

## NATURAL AND PHYSICAL RESOURCES

Fort McHenry's natural resources may be described as unimproved lawn with an assortment of native and ornamental shrubs and trees. A constructed wetland area is located adjacent to the Park and provides habitat for a variety of wildlife. This is important, as the areas surrounding the Park have very little vegetation.

## SOILS AND TOPOGRAPHY

Fort McHenry sits above neighboring properties, including the U.S. Naval Reserve which is closer to the river's level. Currently, topography in the Park is relatively flat with rolling hills, ranging from sea level to approximately 37 feet National Geodetic Vertical Datum of 1929 (NGVD). The topography at Fort McHenry and the immediate vicinity has changed a great deal over time. The area has been used as a defensive position since the Revolutionary War. As a result, efforts have been made to reshape the topography to best serve the defensive strategy of the time. For years soil was brought to and manipulated within the area. The fill used to create the desired topography has had an impact on the surrounding soil.

The predominant recognizable soil type in the project area is the Woodstown Series. It is a deep, moderately well drained soil with gentle slopes. Seasonal wetness and a high water table create moderate to severe limitations to development within this soil complex. Other soils in the area include Udorthents

smooth and areas defined as urban land. Both of these types are considered to be miscellaneous soils that have been altered by cutting and filling activities related to construction activity. Based on the compacted nature of these soils and their relation to other construction projects, there are very few limitations on development.

## VEGETATION

Fort McHenry's vegetation is comprised primarily of approximately 35 acres of maintained lawn. The turf contains a mix of blue grass (*Poa pratensis*), annual bluegrass (*Poa annua*), tall fescue (*Festuca arundinacea*), and Bermuda grass (*Cynodon dactylon*). Until recently, 'Kentucky 31' tall fescue had been used for lawn restoration, but currently 'Delmarva', a mix of several turf-quality tall fescue cultivars, is used for this activity. Other vegetation in the area consists of the following trees and shrubs: pine (*Pinus* spp.), oak (*Quercus* spp.), sycamore (*Plantus occidentalis*), black locust (*Robinia pseudoacacia*), crabapple (*Malus* spp.), as well as ornamental cherry (*Prunus* spp.) and pear (*Pyrus calleryana*).

A number of the trees planted along the Seawall Trail were planted as part of a project with "Tree-mendous Maryland," on the 20<sup>th</sup> anniversary of Earth Day in 1989. The Tree-mendous Maryland Program was initiated as a means to foster citizen awareness and support of tree-planting projects throughout the state. Since the project began, approximately 575,000 volunteers have planted trees for the program across the State of Maryland. In 2002, DNR reported that six million seedlings had been supplied to Maryland citizens.

An early War Department-era planting installed in 1932 consisted of a number of oaks planted along the main Park road. At the base of each tree, a tablet was placed to commemorate the induction of each state into the Union. All but one of the original trees have been removed and the tablets have lost their association with the current planting along the road. Plaques were also made to commemorate the famous personages who fought in the Battle of Baltimore, but were moved in 1964 and are now located in a crabapple grove around the Statue of Orpheus (the Francis Scott Key Memorial).

Although this vegetative population may be minimal compared to other units of the NPS, it is quite extraordinary given the surrounding urban and industrialized environment.

## FLOODPLAINS

Executive Order 11988, "Floodplain Management," was signed into law on May 28, 1980. In response to this order, the NPS issued Special Directive 93-4 followed by Director's Order (DO) 77-2, "Floodplain Management," (NPS 2003). The order directs the Park's policy on floodplains. This policy includes efforts to maintaining natural floodplain functions by avoiding modification, occupancy, or development within a floodplain. It also directs the relocation of structures damaged by floodwaters.

Fort McHenry sits at the confluence of the Northwest Branch and the Patapsco River, which is tidally influenced. Based on three months of tide information (August – October 2002) the highest predicted normal tide at Fort McHenry area is 2.1 feet NGVD.

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps for Baltimore City (panels 2400870015D and 2400870014D) revealed that a portion of the Park, along the Seawall, is within the 100-year floodplain (Figure 11). A 100-year floodplain is the elevation along a river that has a 1 in 100 chance of experiencing a specific sized flood<sup>1</sup>, or a flood that will occur once every 100 years. The 100-year floodplain at Fort McHenry extends to 8.1 feet NGVD. Only the Seawall, the Seawall Trail, and the area around the dock fall within this elevation. In addition, a coastal hazard or velocity zone is present at the confluence of the rivers. In this area, damage from coastal wave action is possible up to 10 feet NGVD once every 100 years. The 500-year floodplain within the Park's property extends to 10.6 feet NGVD. The 500 year floodplain is similar to the 100, only the flooding that would encompass this plane occurs once every 500 years on average (FEMA 1998).

On September 18, 2003, Hurricane Isabel hit the east coast of the United States. The Patapsco River rose several feet over the Seawall leaving tons of debris on Park property, including a channel buoy and many large beams. Along with this flooding, the dock, which provides access for one of the area water taxis, was stripped of its planks, but the pilings remained intact. Despite this damage, none of the Park buildings received flood damage and only minor damage to vegetation was inflicted. However, both the U.S. Army Corps of Engineers and U.S. Naval Reserve facilities, located within the 100-year floodplain, were flooded. Many of the vehicles located at these facilities were saved because they had been moved to higher ground within the Park.

## **SURFACE WATERS AND CHESAPEAKE BAY RESOURCES**

The Patapsco River originates 52 miles from its mouth at the Chesapeake Bay. The 52-mile river drains a 540 square mile watershed on its way to the Bay. Although in its upper reaches the Patapsco has relatively clean water, the water quality degrades as it flows downstream. In its upper reaches, the river begins to absorb quantities of pesticides and animal wastes from agricultural runoff. As the river reaches the Baltimore area, urban runoff and industrial pollution further impact water quality. The harbor area adds additional impacts to water quality of the Patapsco, as toxic substances are imbedded in the floor of the harbor. These toxins in combination with high levels of turbidity have all but eliminated life in the harbor and lower Patapsco and annual fish kills are commonplace.

In an effort to reverse this trend, Maryland's Chesapeake Bay Critical Area Law became law on June 1, 1984. The law was designed to reverse poor water quality trends in the Chesapeake Bay by protecting the Bay, its tributaries, and the land surrounding these resources, as well as supporting multi-state agreements to protect the Bay. To ensure this protection, the law creates a 1,000-foot area around critical resources, including tidal areas and wetlands. Development within this area must improve water quality in the Bay by controlling stormwater runoff and protecting wildlife habitat along the Bay. Development within this area may also require a 10% reduction in the current stormwater pollutant load.

The 1,000-foot area is broken down into different zones. The first 100 feet from the water is referred to as the buffer. The remaining areas are divided into intensely developed areas (IDA), resource conservation areas (RCA), and designated habitat protection areas (DHPA). These areas may require specific

□

<sup>1</sup> The size of a 100 year flood varies depending on location.

development guidelines and require consultation with the local planning department (Baltimore 2003). Almost all of Fort McHenry project site falls within this 1,000-foot zone, including the Visitor Center, the Fort, the restrooms and picnic area, as well as the trail along the Seawall (Figure 10).

Along with this responsibility, the NPS is also a signatory of the Chesapeake Bay Agreement. The agreement creates a common goal among its members to:

*...nurture and sustain a Chesapeake Bay Watershed Partnership and to achieve the goals set Forth ..... Without such a partnership, future challenges will not be met. With it, the restoration and protection of the Chesapeake Bay will be ensured for generations to come," (Chesapeake Bay Program 2000).*

Fort McHenry's proximity to the Chesapeake Bay makes its role in both of these programs an important one. Although the Park does not have an individual Bay agreement, it does abide by and support all elements of the NPS's agreement. In addition, its location provides an excellent opportunity to interpret the history and ecosystems of the Chesapeake Bay.

Coordination with the State of Maryland Critical Area Commission has already been initiated (See appendix). The design of the BMPs would comply with the Chesapeake Bay Critical Area Law by reducing current stormwater pollutant loads by 10%. The commission would review and approve the design of the BMPs prior to implementation. The BMPs would be constructed in conjunction with the new facility. Once in place the BMPs would immediately begin to reduce pollutant loads.

## **HAZARDOUS MATERIALS**

Fort McHenry is located in a highly industrialized area where there is the potential for many hazardous materials to exist. Within the Park, however, hazardous materials are limited. The Mission 66 duplex which now serves as administrative offices and a Park residence has LBP on the exterior wood trim of the building. There is no asbestos in this structure.

The Visitor Center, however, does have ACM associated with the theater's soundproofing. This is the only known asbestos in the Park. The Visitor Center also has LBP located on the exterior of the building's metal window frames.

The Park's maintenance facility houses a number of potentially hazardous materials. There is a 1,000-gallon compartmentalized above ground storage tank located in the maintenance facility. It contains 500 gallons of gasoline and 500 gallons of diesel fuel. There is also an inventory of cleaners, paints, sealants, and other related materials located in the old maintenance building. All of these materials are included in the Park's spill prevention plan. Improvements to maintenance operations over the last few years have reduced the use of hazardous materials within the park. Overall, hazardous materials within Fort McHenry are limited and properly managed and monitored to ensure no adverse impacts to health or safety.

## CULTURAL RESOURCES

Fort McHenry National Monument & Historic Shrine is a vital part of America's national system of Parks, monuments, battlefields, recreation areas, and other cultural and natural resources. Established by an Act of Congress (43 Statute 1109) on March 3, 1925, Fort McHenry is located on Whetstone Point, southeast of Baltimore's Locust Point vicinity. Comprised of 43.26 acres, the Park is charged with preserving the historic Star Fort and its accompanying architecture, the cultural landscape and its many features, and the archeological sites in perpetuity for the experience, enjoyment, understanding and appreciation of all Americans, approximately 608,077 of whom visit annually.

Following the passage of the National Historic Preservation Act of 1966 (NHPA), Fort McHenry was administratively listed on the NRHP. Thirty-three years later, documentation supporting this listing was completed, approved and signed on April 2, 1999 by the Keeper of the NRHP. The period of significance documented in reference to Fort McHenry is lengthy, beginning with its 1794 to 1802 construction period, extending through the crisis of the American Civil War, until 1945 at the close of World War II, when the United States Coast Guard occupied the Fort and served as caretaker for the property. The historical significance of Fort McHenry is tied to its association with events that have made a significant contribution to the broad patterns of our history (*NR Criteria A*), for its association with the lives of persons significant in our past (*NR Criteria B*), for its representation of distinctive methods and materials in design and construction (*NR Criteria C*), and for its potential to impart new knowledge through the analysis of resources preserved in the soil (*NR Criteria D*). Architectural features and site infrastructure at Fort McHenry associated with the NPS "Mission-66" park development program of the 1950's and 1960's were determined ineligible for the NRHP in 2003. These include the Visitor Center itself, Park housing and maintenance buildings, and the visitor parking lot and pedestrian circulation developed as part of the "Mission-66" program.

In order to ensure no adverse effects to archeological resources, the Park would be prepared to enter into a Memorandum of Agreement (MOA) with the State Historic Preservation Officer (SHPO). The Park regularly communicates with the SHPO and coordination for this project has already been initiated (See appendix). Communication and coordination would continue through the development phase. The details of the MOA would determine the length of the necessary mitigation. Regardless of the time required to mitigate potential impacts, the result would be **no adverse effect** under Section 106 of the NHPA. Fort McHenry would continue to communicate with the SHPO after the project to ensure this project, and future efforts, avoided significant impacts to the area's cultural resources.

For the purposes of this analysis, cultural resources are divided into archeological resources, historic structures, cultural landscapes, and museum collections. A summary of the cultural resources within the project area follows.

Figure 11



## **ARCHEOLOGICAL RESOURCES**

Certain important research questions about human history can only be answered by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. The focus of archeological investigations at the Park has been to better understand the growth of the Fort through its many stages of development.

These investigations have been based on historic plans and other documentation describing the Fort's design and development. Many of the old plans used to describe the Fort are missing key pieces of information, including surrounding topography, or the height of related structures. These elements are necessary to properly interpret the conditions that contributed to the Fort's design and development. In order to improve the understanding of the history of the Fort, archeological investigations have sought to find answers to this missing information.

The original property of Fort McHenry (the interior of the original Boundary Wall) was eliminated from development considerations. This is due, in part, to the significance of the landscape and archeological resources within this area. These resources are associated with the Fort ca. 1814, which is far more significant to the purpose of the Park than other resources located within the modern property. Impact to these ca. 1814 resources is consequently less tolerable.

Due to fortification and early 20<sup>th</sup> century fill activities, very little of the original ground cover remains at the site. Therefore, archeological clues are required to date various soil layers. Clues range from military buttons, to ceramics, to historic drainage ditches. The age of these items allows researchers to estimate the age of the soil and then the age of the Fort structures found within.

The area in the vicinity of the southwest side of the existing parking lot, now occupied by the restrooms and picnic area, contains remains of an 1840-1860s stables/1870-1920s barracks, a ca. 1850 chapel, as well as portions of the original Boundary Wall footing. Limited archeological investigations in this area were last performed during the 1960s as part of a construction monitoring exercise. The only resource that was reliably documented was remnants of the Boundary Wall. Investigations of this resource have clearly identified its location northeast of the 1814-era structures in the vicinity of the existing Visitor Center. Any new development in this area, or other areas of the park, would be preceded by further archeological investigations. It should be noted that the portion of this area that would be most directly impacted by the project had been previously disturbed by an 1880-1920s road and by adjacent utility corridors.

Other areas of potential impact include the overflow parking area and the area by the maintenance facility and front gate. The area encompassed by the overflow parking area contained frame wards of the World War I hospital that once occupied the Park. The area by the maintenance facility and front gate contains additional resources related to the 1840s military hospital. As stated previously, any new development in this area, or other areas of the park, would be preceded by further archeological investigations.

## **HISTORIC STRUCTURES**

In order for a structure or building to be listed on the NRHP, it must be associated with an important historic context, i.e. possess significance – the meaning or value ascribed to the structure or building and have integrity of those features necessary to convey its significance, i.e. location, design, setting, workmanship, materials, feeling, and association. Despite the Park’s listing on the NRHP and the conformance of several Park structures to these standards, no individual structures within the Park have been listed. A number of the structures, including the Fort and the Seawall, have been identified as contributing to the historic nature of the site.

Initial fortifications at Whetstone Point were developed before the Revolutionary War. The Point had an excellent strategic position between the Chesapeake Bay and Baltimore. Whoever controlled the Point not only controlled the waterways leading to and from Baltimore, but was also in an excellent position to defend themselves from a landward attack. The Point was first used as a military post during the Revolutionary War. After the war, the Continental Army was reduced in size and focused on dealings with Native Americans. The Fort at Whetstone Point was sold to private interests and remained in private hands for the next 13 years.

By the late 1790s, during the Quasi War, tensions with France were rising. In 1794, in preparation for another potential conflict, the United States government authorized funding for the First American System of fortifications along the east coast. This program was designed to strengthen coastal defenses along the Atlantic and Great Lakes. Work at Whetstone Point consisted of the construction of a Star Fort, which was named for the Secretary of War, James McHenry.

Tensions eased a bit at the turn of the century and the First American System came to an end. Maintenance of the Fort was funded by local governments and merchants. By 1807, however, during the era of the Napoleonic War in Europe, the United States was concerned and again began construction of the Second American System of fortifications. This program built off the First American System and included the development of new Forts as well as increasing firepower and defenses at others. By 1814, Fort McHenry consisted of the Star Fort, with a ravelin<sup>2</sup>, a dry moat, and various inside buildings; an Upper Battery and a Lower Battery near the water’s edge; and several outbuildings, among them a barracks, store houses, and a hospital. The commander of the Fort, Major George Armistead, had commissioned a large 30 by 42 foot American flag for the Fort. It was at this time that Fort McHenry gained its prominence.

The Chesapeake Campaign of the War of 1812 reached Baltimore in September 1814. During the Battle of Baltimore, the Fort sustained a 25-hour bombardment from British naval forces. Bomb damage included one shell that crashed through the roof of the powder magazine. Remarkably, this shell did not explode. Other structures within the Fort were also damaged. The scenes of the battle, and the American victory inspired Francis Scott Key, who detained on board a flag-of-truce vessel during the fighting, to write the poem, “The Defence [sic] of Fort McHenry.” Key wrote the poem to the tune, “To Anacreon in

□

<sup>2</sup> A work constructed beyond the main ditch, opposite a curtain, composed of two faces and forming a salient angle. It has its own ditch, and there is usually a counterscarp opposite its scarp. Alternately called a demi-lune (Cheek 2000).

Heaven,” by John Stafford Smith. The song was popular in America and England at the time, and had been previously adapted to other poems. The poem and the tune would later become our National Anthem.

After the Battle of Baltimore, the Fort would never see battle again; however, this did not prevent it from being used for military operations. During the Civil War, the Fort’s guns were aimed at Baltimore as a defensive measure based on the area’s location between the North and Washington D.C. This location made Union control crucial to its success. The area was also used as a military hospital during World War I and by the Coast Guard during World War II as a base of operations.

The Park’s entrance gate also contributes to its historic context. The stone entrance columns and brick Boundary Wall were originally constructed just outside the walls of the Fort to provide defense against a landward attack. This structure was entirely relocated to its current location in 1837 when the property was expanded. This architectural feature of the Park provides visual and landscape context to the area between the entrance and the Fort. In May of 1861, this entrance gate was also the site of the refusal of a writ of Habeas Corpus that resulted in the famous Supreme Court ruling in the case of *Merryman vs. the United States*, in which President Lincoln’s suspension of Habeas Corpus was challenged.

## **SEAWALL**

The Seawall was built in segments between 1817 and 1895, with the first section completed in December 1817. The wall was substantially extended between 1836 and 1839. Further repairs occurred in the late 1870s and 1890s. The wall has held up nicely for years and occasional repairs have been performed throughout its history to repair storm damage and erosion. In 2002, the Park completed an environmental assessment for more comprehensive repairs. Extensive repairs were completed prior to Hurricane Isabel and further work will continue in 2004.

## **MISSION 66 ERA STRUCTURES**

In addition to these structures, there are several Mission 66 Era features in the Park, including the Visitor Center, a maintenance facility, the main entrance road, the parking lot, several landscaped areas, and duplex that currently serves as housing and administrative offices. Determinations of Ineligibility for Mission 66 features of the Park were completed in both the NR Nomination documentation submitted to the Keeper of the National Register for Historic Places, in 1999 and in a more comprehensive Determination of Ineligibility specifically written to address the overall Mission 66 Era Development in the Park. This determination was approved in 2003.

## **CULTURAL LANDSCAPES**

A cultural landscape is “...a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions,” (NPS DO-28). A cultural landscape is a geographic area, including both cultural and

natural resources and the wildlife and domestic animals there, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four overlapping categories of cultural landscapes, including: Historic Sites, Historic Designed Landscapes, Historic Vernacular Landscapes, and Ethnographic Landscapes. While Fort McHenry may best be categorized as a Historic Site, it also contains elements of the Designed and Vernacular Landscape. The site is of tremendous value in support of the traditions, ceremonies, and the cultural identity of communities extending well beyond the municipal limits of Baltimore.

Cultural landscapes may be more fully understood through an analysis of tangible and intangible characteristics and features. Unique arrangements of characteristics and features define landscape character and help convey a property’s cultural value. These include: *Natural Systems and Features*, as fundamental aspects of the property influencing the development and physical form of the property; *Spatial Organization*, as the three-dimensional manifestation of natural and built forms that articulate outdoor space; *Land Use*, as the human activities and interaction with the landscape that form, shape and organize the land; *Cultural Traditions*, as management practices, preferences that influence landscape character and form; *Cluster Arrangement*, as the location and pattern of building and structures in the landscape; *Circulation*, including the spaces, features, and surface materials that constitute the systems of movement in the landscape; *Topography* representing the three-dimensional modeling of the ground surface; *Vegetation*, inclusive of the native and non-native trees, shrubs, vines, ground covers and herbaceous plants on-site; *Buildings and Structures*, as elements constructed primarily to shelter any form of human activity; *Views and Vistas*, as the prospect or range of vision in a landscape conferred by the composition of other landscape characteristics; *Constructed Water Features*, as the built features and elements that use water for aesthetic or utilitarian function in a landscape; *Small-Scale Features*, as the elements providing detail and diversity for both functional needs and aesthetic concerns; *Archeological Sites*, as the ruins, traces, or deposited artifacts in a landscape evidenced by the presence of either surface or subsurface features.

| <b>Table 3: Buildings, Memorials, and other Classified Structures</b>   |   |
|---|---|
| <b>Spatial Organization</b>   |   |
| Major Site Axis: following NW-SE former road to Baltimore (now Fort Avenue)   | Minor Site Axis: following pre-1837 Boundary Wall – corridor between Star Fort and dock.                                    |
| Site boundaries: As defined by the water’s edge and built walls and fences reflected in existing site conditions.   |   |
| <b>Topography</b>   |   |
| Overall Site Topography: As currently represented by the land sloping away from the topographic spine occupied by the entrance road corridor.               | Earthen Fortifications: Topographic manipulation serving as components of the fortification system.                         |
| <b>Vegetation</b>   |   |
| Cultivated Turf grass: Used currently and historically to control erosion on earthen fortifications, and elsewhere as ground cover throughout the property. | Woody Plants more than 57 +/- years old: Less than 10 individual plants survive from the end of the period of significance. |

| <b>Circulation</b>   |             |   |             |
|--|-------------|---|-------------|
| Fort Avenue  | LCS – 81229 | Parade Drive  | LCS – 81214 |
| Parade Paving  | LCS – 81213 | Interpretive Brick Walk   | LCS – 81220 |
| Seawall Trail  | LCS – 81230 |   |             |
| <b>Buildings and Structures</b>  |             |   |             |
| Fort Scarp   | LCS – 0352  | Magazine No. 1  | LCS – 81217 |
| S Port and Gate Houses   | LCS – 0354  | Ravelin. Gun and Emplacement  | LCS – 81218 |
| Powder Magazine  | LCS – 0355  | Water Bat. Guns/Emplacement.  | LCS – 81221 |
| Enlisted Men’s Barracks  | LCS – 0356  | Bombproof No. 1   | LCS – 81222 |
| Flagpole   | LCS – 0357  | Bombproof No. 2   | LCS – 81223 |
| Junior Officers’ Quarters  | LCS – 7553  | Magazine No. 2  | LCS – 81224 |
| Enlisted Men’s Barracks 1  | LCS – 7554  | Magazine No.3   | LCS – 81225 |
| Ravelin Scarp Walls  | LCS – 7750  | Bound. Fence and Brick Piers  | LCS – 81224 |
| Dry Moat   | LCS – 7751  | Ravelin Revetment Wall  | LCS – 81245 |
| Commanding Officers’ Quarters  | LCS – 7752  | Fort Breast Height Wall   | LCS – 81247 |
| Water Battery Retaining Walls  | LCS – 7755  | Statue of Orpheus and Base  | LCS – 0353  |
| Civil War Magazine   | LCS – 7756  | Armistead Monument and Base   | LCS – 7759  |
| Boundary Wall and Gates  | LCS – 7757  | British Bomb Monuments  | LCS – 81231 |
| Seawall  | LCS – 7758  | American Privateers Monument  | LCS – 81226 |
| Parade Wall  | LCS – 81212 | War of 1812 Memorial Tree Plaques   | LCS – 81228 |
| Postern  | LCS – 81215 | State Table Monuments   | LCS – 81232 |
| Traverse   | LCS – 81216 | F.S. Key Memorial Plaque  | LCS – 81248 |
| <b>Views and Vistas</b>  |             |   |             |
| Field of Fire: Panoramic views of harbor and river from fortifications.                        |             | View of Entrance from Fort: This was an important view of the gate from the Fort in the event of a land attack. |             |
| <b>Marked and Unmarked Archeological Sites</b>   |             |   |             |
| Tavern Site  |             | Gun Shed  |             |
| Hospital   |             | Barracks  |             |
| Store House  |             |   |             |
| <i>Note: Significant unmarked archeological resources are located throughout the property.</i> |             |   |             |

The following discussion is excerpted and adapted from the 1999 NRHP Documentation. The 43.26 acres encompassing Fort McHenry National Monument & Historic Shrine represent a historic site composed of numerous historic, archeological and cultural landscape resources that chart the course of Fort McHenry’s evolutionary development. These resources comprise the structural design elements and materials that have gone into the Fort’s construction and the artifacts and other elements of material culture associated with the various periods of construction and occupation. Several 20<sup>th</sup> century additions to the Fort grounds, particularly commemorative markers and statuary, reflect the importance of memorial activities at Fort McHenry.

Other than the existing structures and buildings that comprise the historic fortifications and external walls [i.e., the Star Fort, outer (water) battery, the Civil War Powder Magazine, Seawall, and Boundary Wall], few remnants of the cultural landscape associated with the late 18<sup>th</sup> and early 19<sup>th</sup> century development of Whetstone (Locust) Point for military defense purposes survive. Construction of U.S. Army General Hospital No. 2 in 1917 for the convalescence of the World War I veterans, and the subsequent removal of the hospital buildings, resulted in extensive disturbance to the landscape surrounding the Fort. Among the external features disturbed by the construction and grading undertaken during this period were the glacis<sup>3</sup> and dry moat around the perimeter of the Star Fort. Aerial photographs taken of Fort McHenry during the 1920s underscore the extent of development associated with the Army hospital, showing barracks and other buildings occupying virtually all available space outside the Fort to the water's edge.

With efforts underway in the latter 19<sup>th</sup> century to commemorate the significance of the defense of Fort McHenry, Francis Scott Key, and the writing of "The Star-Spangled Banner;" the landscape underwent further changes reflecting the memorialization of the site. Various statues and markers were placed in 1914 during the centennial observance of the bombardment. Placement of the Statue of Orpheus (authorized by Congress in 1914, but not placed on site until 1922), altered a portion of the entrance road with the construction of a circular drive around the base of the statue. The statue was moved to its present location in 1963 to accommodate improved access to the new parking lot and Visitor Center. During the 1932 Bicentennial celebration of George Washington's birth, other markers and monuments were placed on the grounds along with the planting of commemorative trees (e.g., the Washington Elm and cherry trees planted by the school children of Baltimore).

Since then, the statues and markers have been relocated in many instances, sustaining a loss of integrity in terms of location and setting. Many of the original commemorative trees have died; the Washington Elm died in 1995 and was removed that year. While the markers and statuary continue to evoke the broad historical significance of the Park's periods of memorial activities, and in some instances retain historical/artistic significance in their own right, the cultural landscape of the memorial period is not intact.

While many of Fort McHenry's smaller landscape features have been lost, the site retains several broader landscape characteristics that contribute to the significance of the property and provide insight into the selection and development of the site for defensive purposes. The tip of Whetstone Point offered substantial strategic advantages for the defense of Baltimore by commanding the approaches to the Northwest and Middle branches of the Patapsco River. This was as true in 1776 during the Revolutionary War when Fort Whetstone was first constructed on the site, as it was throughout the long span of Fort McHenry's subsequent military service. Under the prevailing 18<sup>th</sup> and 19<sup>th</sup> century theories of coastal fortifications, these consisted of a succession of features designed to repel or impede an enemy's advance; the shore-line and upper gun batteries, the elevated slope (glacis), the ditch (dry moat) with its counterscarp, and ultimately the Fort ramparts situated on higher ground.

Although many of the defense works external to the Fort have been removed or modified, the large-scale spatial organization of the site remains intact in many respects. For example, the Fort retains its historic geographic orientation towards Baltimore, the Northwest Harbor and Middle Branch. The sloping grass-

□

<sup>3</sup> the earthen defensive slope that formerly extended from the water battery to the seawall

covered area outside the Fort walls is at least partially representative of early military efforts to maintain an open field-of-fire between the Fort and the water's edge. Consequently, a general sense of the strategic importance of the site and the reasons behind its selection for fortifications is readily conveyed to the Park visitor.

The clustered arrangement of officers' quarters, barracks, and powder magazine on the parade ground inside the Star Fort all protected by the earthen and masonry ramparts, has remained a defining characteristic of the Fort throughout its long history. Despite substantial alterations and subsequent restorations of individual buildings, and the modifications that accompanied armament and other structural/technological improvements, the War Department never undertook measures to substantially reconfigure the Fort away from its late 18<sup>th</sup> century pentagonal design. The Fort retains and continues to convey the intent of its original design as a tightly contained and functionally integrated coastal defense work and garrison.

The 10-foot high brick wall presently marking the western boundary of the grounds was constructed in 1837 following the War Department's acquisition of additional lands in 1836. It not only serves as a formal demarcation of the western property line, but provides the approaching visitor the first physical feature clearly symbolic of the former military presence and control of the site. The Boundary Wall also provides a ready visual indicator of the maximum spatial extent of the Fort grounds toward the west.

The bituminous entrance road (a continuation of Fort Avenue) follows the historic alignment of the original access road to the Fort from Baltimore. While a section of the alignment was eliminated to accommodate the modern curved extension to the visitor parking area, a paved footpath follows a continuing portion of the historic alignment north of the ravelin. No readily observable evidence of the original roadbed remains.

The NPS currently maintains the grounds to preserve the memorial character of the national monument. Grass lawns extend from the boundary (entrance) wall to the Seawall, with clusters of native and non-native trees and shrubs. Crabapple trees have been planted in a semi-circle between the statue of Orpheus (the Francis Scott Key Memorial) and the Civil War Powder Magazine. A circulation network consists of the two-way paved entrance road to the visitor parking lot, paved roads to the maintenance area, and several pedestrian walkways. Walkways provide access to the Star Fort, Visitor Center, and the Civil War Powder Magazine. They extend along the Seawall around the perimeter of the property from the picnic area near the boat dock on the north, to an artificial marsh area on the southwest. Non-contributing Park housing and maintenance facilities are clustered at the west end of the property and south of the entrance.

## **MUSEUM COLLECTIONS**

The preservation of museum collections is an ongoing process of preventative conservation, supplemented by conservation treatment where necessary. Collections may be threatened by fire, theft, vandalism, natural disasters, and careless acts. The primary goal of artifact preservation is a stable condition to prevent damage and minimize deterioration.

Fort McHenry's museum collection includes over 55,000 artifacts and nearly 16,000 catalog records stored in a Civil War Powder Magazine. Of these, nearly 30,000 are archeological items, including historic plans that have been used to interpret the Fort's history and direct other archeological investigations described earlier in this document. Large objects in the collection are stored on open shelving in the Civil War Powder Magazine, while smaller items are stored in museum specimen cabinets and textiles are stored on two large flag racks. Approximately 50% of the building's storage space is dedicated to artifacts from the Hampton NHS, the Park's sister site located 18 miles away.

The magazine is protected by an intrusion/fire alarm system. Temperature and relative humidity in the building are monitored with hydro thermographs and data loggers. A heating/ventilation/ air-conditioning (HVAC) system and dehumidifiers are used to maintain temperature and relative humidity within selected parameters outlined by *NPS Museum Handbook* (NPS 1998). The building's floors are washed regularly and air filters are changed on a bi-annual basis. Conditions are normally considered to be excellent for museum storage.

Copies of over 70,000 documents are kept in the Park's library within the Fort. This provides staff, researchers, and other interested parties with easy access to many items while protecting the originals from overuse.

Despite these desirable storage conditions, the collections are stored in a historic structure. This setup adds additional stress to the long-term integrity of the Fort, as it puts heavy loads on the historic structure. Furthermore, it does not allow for future expansion as the library grows.

## **VISUAL RESOURCES**

Although the Park is surrounded by intense urbanization, it has been able to preserve many of its visual resources. The main gate, which currently provides the only public land access to the Park, immediately introduces the visitor to the historical Fort setting. Visitors then follow the entrance drive past a row of plaques commemorating each of the 50 states' induction into the Union. At one time, a tree stood at each plaque, but now many of the plaques stand alone in the grass. Beyond the row of plaques visitors catch a view of the current Visitor Center and Fort before turning into the parking area.

Once on site, the Fort is the primary visual resource. Despite the intense development around the site and along the harbor, the Fort's proximity to the surrounding waterways remains unchanged, thus providing the visitor with an opportunity to imagine the British fleet converging on Baltimore.

This view of the field of fire from the Battle of Baltimore contributes to the Park's historical context. Another important view is the view from the Fort to the front gate. This view also has a historical context, as it was the line of site monitored to ensure that no landward threats were present to the Fort. The flag is also a key visual resource at the Park. Upon completion of the Visitor Center film, a curtain in the theater opens to reveal a view of the flag flying over the Fort. This visual reference allows visitors to make a connection between what they are seeing on their visit and its historical significance. This view also allows the visitor to see the flag and the Fort without any visual interference from surrounding land uses.

Two statues are also located on the site: Orpheus (the Francis Scott Key Memorial) and Armistead. The Orpheus Statue is a 22-foot high bronze statue that sits on a 15-foot high marble pedestal. The statue of the Greek mythological hero of music and poetry was dedicated in 1922 to Francis Scott Key. The statue of Colonel George Armistead was dedicated in 1914, the centennial anniversary of the writing of “The Star-Spangled Banner.” Armistead served as commander of Fort McHenry during the Battle of Baltimore and he commissioned a local seamstress, Mary Pickersgill, to make the large 30 by 42-foot garrison flag for the Fort, now known as The Star-Spangled Banner. She was also paid to make a smaller 17 by 25-foot storm flag. It was Armistead’s intention to hoist the large garrison flag on the Fort’s 89-foot flagpole so that British ships would have no difficulty in seeing it from a distance.

Not all of the Park’s viewsheds are appropriate to the Park’s mission. The Park’s maintenance area is comprised of two individual areas. Although these areas are somewhat screened from the visitor, equipment and other related items are visible from the main Park road. During busy visitor periods, cars and buses take up much of the viewshed as they wait for traffic or visitors along the Park road or idle in nearby parking areas. Although many of these areas are partially screened, they do not provide enough coverage to block disturbances in the viewshed.

Furthermore, other views mislead visitors about the Fort’s history. The lack of interpretive development outside the Fort’s walls suggests that there were no military operations outside the Fort during the Battle of Baltimore. This is not true. Several significant structures and defensive features were located outside the Fort walls and were manned by volunteer militia during the Battle of Baltimore. The Park is currently working on constructing a Water Battery exhibit between the Fort and the river to provide increased interpretation of the 1814 maritime history of the Park. Large French naval guns will be mounted on the new Water Battery exhibit to explain the type of naval cannons used at Fort McHenry during the War of 1812. Currently the visiting public is often confused by the fifteen Civil War era Rodman guns that are mounted on the gun emplacements in the Outer Battery. While these are also authentic period cannons, they were not installed at Fort McHenry until just prior to the Civil War. The Park intends to continue to improve the interpretive program, improve the visitor experience, and hopefully lessen the confusion regarding the artillery used at the Fort during different time periods.

Despite these flaws, the overall viewshed at the Park provides great support to the Park’s mission. Views of the field of battle are still visible, as well as the Fort, gate, and flag. All of these elements allow Fort McHenry to be viewed in a historical context.

## **VISITOR USE AND EXPERIENCE**

*NPS Management Policies 2001* (NPS 2000) states that the enjoyment of Park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks.

Part of the purpose of Fort McHenry is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the Park’s management goals is to ensure that visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of Park facilities, services, and appropriate recreational opportunities.

## **FACILITIES**

The Visitor Center is the primary visitor contact station at the Park while many other interpretive displays are located in the Fort. Many exhibits in the Fort focus on life during various periods of history, while others expand on the War of 1812 story initially presented in the Visitor Center. Approximately half of these exhibits are less than three years old, and two others are in planning stages for redesign or refurbishment. The audio-visual presentation at the Visitor Center has been modified at least three times since it was introduced in 1985, and there have been improvements to the original captioning program. In addition, the film has been converted to DVD format and shortened slightly to allow for three, rather than two, showings per hour.

Neither the Visitor Center nor the theater is adequately sized to handle current or projected visitor loads. The Visitor Center is 5,700 square feet. Of this space, only 3,600 square feet are dedicated to visitor uses (the theater only has seating for 70 guests). This creates a situation in which many visitors are turned away from the theater when they initially arrive. Due to its small size, the Visitor Center does not offer enough space to allow people to wait for the next film. Therefore, visitors may either explore the site or in many cases leave without viewing the film or the rest of the site. Those visitors that do wait to see the video slow down the visitor turnover time and create backups in parking.

## **AMENITIES**

Those visitors that arrive by water taxi face another challenge. The only food concessions currently available at the Park are from vending machines. The surrounding area has very few food options within walking distance. As a result, many people cut their visits short in order to find places to eat. Visitors that arrive by personal vehicle or bus may leave the Park for food and return later.

## **VISITATION**

Time spent by visitors in the Park is an important issue for Fort McHenry and other units of the NPS. In 1991, Yale University conducted a market survey at the Park and determined that the majority of Park visitors spent 1-2 hours at the Park. In addition, the study found that 20% of visitors to the Park were local and another 29% were from the region (within a 25-mile radius of the Park). These local users tended to arrive at the Park in the mornings or evenings, and nearly half of all local visitors went to the Park for recreation and some for scenery. Those that visit for historic value include 42% of regional visitors and 63% of national visitors. Repeat visitors are also common at Fort McHenry (14% of respondents had visited 50 or more times).

**Table 4 Visitation**

| <b>Year</b> | <b>Total Visitation</b> | <b>To VC</b> | <b>Pedestrian</b> | <b>Bus</b> | <b>Boat</b> | <b>Car</b> |
|-------------|-------------------------|--------------|-------------------|------------|-------------|------------|
| 2003        | 608,077                 | 382,368      | 54,597            | 71,943     | 57,908      | 198,576*   |
| 2002        | 674,541                 | 407,942      | 59,123            | 75,080     | 70,673      | 438,574    |
| 2001        | 647,495                 | 387,665      | 47,128            | 73,091     | 75,534      | 451,742    |
| 2000        | 691,501                 | 408,211      | 51,222            | 80,926     | 65,619      | 493,734    |
| 1999        | 682,732                 | 378,638      | 44,857            | 74,869     | 61,957      | 501,049    |

Source: FOMC

\*Note: In 2003 the NPS modified its visitation calculations, accounting for the dramatic decrease in reported vehicular numbers.

## **PROGRAMS**

Several educational programs are available for single and family group visitors to enhance their time spent at Fort McHenry. In addition, the interpretive program at Fort McHenry includes several ceremonial events tied to the theme of flag, song, and patriotism, as well as other special programs for school groups or as requested. The Park sponsors two major living history interpretive events: a biennial Civil War Program in April and a Battle Anniversary Program each September. Other events are offered through special use permits and are sponsored by outside groups and institutions. The National Flag Day Foundation, Inc. sponsors “Living American Flag,” a recreation of the 1914 Centennial ceremony, as well as the “Pause for the Pledge” on June 14 to recognize Flag Day. The U.S. Immigration and Naturalization Service has begun what is hoped will be an annual event in the form of a naturalization ceremony at Fort McHenry.

## **PARK OPERATIONS AND INFRASTRUCTURE**

Park operations refers to the quality and effectiveness of the infrastructure, and the ability to maintain the infrastructure, used in the operation of the Park in order to adequately protect and preserve vital resources and provide for an effective visitor experience.

### **OPERATIONS**

Fort McHenry is open to the public from 8:00 a.m. until 5:00 p.m. during most of the year, but during the summer months (May 31 – September 1) the Park stays open until 8:00 p.m. The Visitor Center closes 15 minutes before the Park throughout the year. The Park is closed on Thanksgiving, Christmas, and New Year’s Day.

Fort McHenry shares a portion of its staff with Hampton NHS. As a result, not all activities can receive the attention that they may require at a given time. The staff that splits time between the two sites must travel 18 miles between the two parks. Therefore, staff efficiency at Fort McHenry must be maximized at all times.

In 2003, Fort McHenry had a full-time staff of 26, with 15 additional seasonal employees. The Fort McHenry staff is divided into three operating divisions: Area Services, Visitor Services, and Administration. All three divisions serve both parks, and include five permanent park rangers, three law enforcement officers, nine maintenance division employees, four administrative personnel, and a Cultural Resource Program Manager. There are an additional nine seasonal park rangers working in interpretation. These employees were assisted by approximately 25,000 hours of Volunteers-in-Parks service. The staff is managed by a General Superintendent who supervises Fort McHenry and Hampton NHS.

Park headquarters operations are spread among four buildings around the site, up to 1/3 mile apart: the Visitor Center, the Star Fort, the maintenance building, and the former superintendent’s quarters. The existing Visitor Center, which houses administrative offices and the staff break room and lockers, is located on the historic landscape within the viewshed of the Star Fort and within the historic scene. Due to the lack of available space in the current Visitor Center, modern functions, including the Park library,

staff offices, and archival collections storage, are located in the historic Fort. These uses contribute to damage to the resource and are incompatible with the historic status of the structure. Also, the library's location in the Fort makes it inaccessible to many visitors.

Onsite security is provided by Park rangers. During hours when the Park is closed, two residences on the property house staff to deter trespassers. One residence is located immediately adjacent to the main entrance gate; the other is within the Star Fort.

## **INFRASTRUCTURE**

A 34,000 volt utility line runs underground through the Park, adjacent to the Visitor Center and entrance road. The line is part of a transmission line for a power grid that provides electricity to the surrounding area. Electric service to the Visitor Center is provided by a three phase 208 line. Many of the Park's outdoor lights are powered by freestanding, self-sufficient, photo-voltaic cells. Water service is delivered in an eight-inch ductile pipe that runs parallel to Fort Avenue. This line supplies all of the water used at the Park, including the fire hydrants (but excluding the metal maintenance building). Sewer service is also excluded at the metal maintenance building and the museum collection storage facility located within the Civil War Powder Magazine. Elsewhere in the Park, sewer service is provided by a six-inch sewer line that runs from the current Visitor Center, across the parking lot, and then passes in front of the Naval Reserve facility. Gas service is provided to the Park by a 2-4 inch line. Finally, a 100 pair phone line is accessed along Nimitz Road and runs to the current Visitor Center. There are no problems with these services; however, the maintenance complex located to the west of the main gate is not connected to any water or sewage service. The building was recycled from Gettysburg NMP and placed in a location where no sewer line service was previously available. Electrical service and public water were already available in the area (Figure 3).

## **PARTNERSHIPS**

Fort McHenry has formed partnerships with various groups to facilitate the preservation and/or development of its resources and those in the surrounding area. One of these partners is the Patriots of Fort McHenry, a group committed to the preservation of Fort McHenry and its history. The group's mission includes the development of living history and educational programs as well as facilities capable of enhancing access and interpretation of the Park's resources.

***Living Classrooms Foundation – Patriots of Fort McHenry.*** In April 1998, the Patriots merged with the Living Classrooms Foundation. The merger gave the Patriots more help with fund raising and administrative work, and gave the Living Classrooms Foundation another partner in its mission. Living Classrooms uses a maritime setting to provide hands-on education and job training to at-risk youth, as well as historic preservation and economic development opportunities. The organization is focused in the Baltimore and Washington D.C. area but extends into New Jersey and Virginia. The foundation operates the National Historic Seaport Taxi which delivers visitors to the City-owned dock which is connected to the historic Seawall on the southeastern boundary of the property.

Other partners include:

**National Aquarium in Baltimore.** Fort McHenry has also joined in a partnership with the National Aquarium in Baltimore, Morgan State University, the Maryland State Department of Natural Resources (DNR), the U.S. Geological Survey (USGS), the Army Corps of Engineers, the EPA, and the Chesapeake Bay Foundation to maintain the constructed wetlands located adjacent to the Park's southwest corner. The project includes real-time water and air monitoring which is recorded by students at Morgan State University. Species inventories have also been conducted within the site. The wetlands were developed by the Maryland Transportation Authority (MTA) with fill from the I-95/Fort McHenry Tunnel as mitigation for the tunnel's development. The Park and the MTA are also working to restore natural tidal flows to the wetlands.

The Park has extended this partnership with the Aquarium to include monitoring and cleanup activities within the wetland area. Over 400 tons of trash and debris have been collected as a result of these activities. This work has improved both groups' ability to interpret the region's environment.

**Chesapeake Bay Gateways Network.** In 2001, the Park was designated as a Chesapeake Bay Gateway Network (CBGN) Site. As a member of the CBGN, Park staff works with non-profit partners to support interpretation of the Bay's maritime history and its relationship with Fort McHenry.

**Pride of Baltimore, Inc.** The Park also joined in a partnership with the Pride of Baltimore, Inc. in 2001. The partnership allows the two groups to share staffing skills and increase training in living history skills. The partnership has also increased the regional interpretation of the War of 1812, as the Pride of Baltimore now includes the war in their interpretive activities.

**U.S. Coast Guard Cutter James Rankin.** A similar agreement was completed with the U.S. Coast Guard Cutter James Rankin. The Memorandum of Understanding (MOU) highlights opportunities for both groups to increase interpretation of the War of 1812 and the writing of "The Star-Spangled Banner."

**Smithsonian Institution National Museum of American History.** Since 1996, Fort McHenry has partnered with the Smithsonian to provide assistance with the research, conservation, interpretation, object loan, and exhibition of the original Star-Spangled Banner. No formal agreement is in place at this time.

**Star-Spangled Banner National Historic Trail.** Since 2000, Fort McHenry has provided staff, meeting space, and logistical assistance to The Star-Spangled Banner National Historic Trail (NHT) Study Team. The project will result in increased information to the Park about the War of 1812. Should the NHT be established, it may also significantly enlarge the mission of the Park.

**American Battlefield Protection Program.** Since 1998, Fort McHenry has provided staff, meeting space, and assistance as participants in the Revolutionary War/War of 1812 Inventory Study project. This study will result in a database of nationwide War of 1812 sites with GIS data and will be available to the public on the Internet.

**Constellation Energy Group.** In 2001, Fort McHenry entered into a Green Energy contract with Constellation Energy Group, the parent company of Baltimore Gas and Electric. The project included donations from the contractors supplying materials and labor and has enabled the Park to install a number of energy-saving elements: photovoltaic lighting throughout the Park; passive solar sky lighting in a retrofitted building; a ventilation system that recycles exhaust air to retain heat; energy-efficient HVAC; and conversion of Cushman vehicles to natural gas. These efforts also led to the Park's 2001 designation as an NPS Center for Environmental Innovation.

**Gettysburg National Military Park.** Finally, the Park has a MOA with Gettysburg NMP and the Society of the War of 1812 in the State of Maryland. The agreement provides for the long-term loan of over 400 Civil War military items from Fort McHenry to Gettysburg. In exchange, Gettysburg will maintain the preservation, conservation, exhibition, and inventory activities for these items.

All of the partnerships that the Park has entered into allow it to improve its role in interpreting the War of 1812 and the writing of our National Anthem. It also allows the Park to contribute to the local and regional community. There are numerous opportunities for future partnerships that would enhance the Park's role in the community.

## **TRANSPORTATION**

The purpose of park roads is to, "enhance visitor experience while providing safe and efficient accommodation of park visitors and serve essential management needs," (NPS 1984). The current vehicular access and circulation patterns within the Park do not successfully meet this purpose.

### **EXTERNAL TRAVEL**

Baltimore is located in one of the most developed regions in the nation. With Washington D.C. to the south and Philadelphia to the north, the Baltimore area is easily accessible. Access to Fort McHenry, however, is not as easy, though there are many potential routes and modes of travel.

Privately-owned water taxis operate in Baltimore's Inner Harbor. These water transit services provide access to various points throughout Baltimore, including Fort McHenry. Public buses also operate throughout the Baltimore area, and provide access to the Locust Point area. Finally, a variety of interstate and state roads converge on Baltimore. Local roads may then be used to reach Fort McHenry. This subject is outside the scope of this project and will be addressed further in the Volpe Center's ATS report.

### **WATER BASED TRAVEL**

Two water transport services currently serve Baltimore and carry visitors to the park from the Inner Harbor and other stops, such as Fells Point. One service requires a transfer between two routes and lands at the City-owned dock at the northern end of the Seawall. The other service drops passengers at Tide Point, from where they ride a jitney bus to the Park. The water services provide visitors with a unique and

scenic perspective of the harbor, the city, and Fort McHenry. The City-owned dock leads to a walkway within the Park that takes visitors to the picnic area, vending machines, restrooms, and the Seawall Trail.

ADA accessibility is an issue at the dock. Due to the dock's fixed elevation, the distance between the edge of the boat and the dock is never constant. This variable makes ADA accessibility nearly impossible without providing a low freeboard floating dock to accommodate this height differential. The slope of the existing walkway extending from the dock to the parking area and restrooms is too steep to comply with the standards prescribed under the ADA.

## **BIKE/PEDESTRIAN CIRCULATION AND ACCESS**

Pedestrians enter the Park through small separate entranceways which are located on either side of the vehicle entrance as part of the historic entrance gate. Sidewalks exist on both sides of Fort Avenue that leads visitors to the Visitor Center. Visitors may also cut across the lawn toward the maintenance yard to reach the Seawall Trail along the Seawall. An existing formalized trail system in the Park connects the parking lot to the Visitor Center, Fort and to the Seawall Trail from the Fort area.

There are no formal bicycle trails in the Park. Currently bikers may share the road with vehicles to reach the Visitor Center or parking area. Although there is no formal record, bicyclists have also been observed riding on the trail along the Seawall. Visiting pedestrians have complained that bicycle riders along the Seawall Trail create hazards for themselves and pedestrians. Although there are no formal counts on how many bikers use the trail, comments from Park visitors and informal observations by Park staff have identified this as an issue that may require remediation. If recreational use of the Park increases as forecasted, impacts on visitor safety may require review of the various uses of the trail.

## **CIRCULATION AND SITE ACCESS**

Circulation and site access are a challenge at Fort McHenry during the peak season. Upon arriving at the Park, vehicles enter through a historic main gate. The gate is only wide enough to accommodate one vehicle, so oncoming traffic must stop and wait. Anecdotal evidence suggests that vehicles waiting outside the Park create congestion and safety issues as they contend with large trucks accessing the Park's neighboring sites. Those vehicles waiting inside the Park create additional congestion and safety issues for pedestrians and bicyclists entering the Park or traveling along the main Park road.

Once through the gate, vehicles pass by the Visitor Center. This approach allows for personal vehicles and buses to drop-off or pick up visitors. Although this is a convenience, the waiting vehicles create congestion and safety issues for pedestrians crossing the road into the parking lot area. The Visitor Center parking lot provides 161 private automobile parking spaces and six bus parking spaces. The Park also has an overflow turf lot located above the main parking area adjacent to the residence/administration duplex. This field is stabilized beneath the surface to provide support without detracting from the green surroundings. During peak visitation, this lot is utilized frequently and can accommodate up to 125 vehicles. Anecdotal evidence suggests that this lot is filled to at least half-capacity at regular intervals during summer months and during special events. Frequent use of the overflow area damages the turf.

The current parking lot does not provide a sufficient amount of bus parking spaces to accommodate school and tour buses during peak season during spring and early fall when school is in session. Between 25 to 35 buses can bring visitors to the Park mid-week during peak season. The location of the bus parking spaces in relationship to the existing Visitor Center and vending/restroom facilities forces school children returning to the buses parked in the bus parking spaces, to walk behind the buses which should be avoided for safety reasons.

Service vehicles that enter the Park to maintain vending machines or other amenities may also create congestion in the parking lot. Since there are no specific/designated access points for these vehicles, they either use one of the parking spaces, park alongside the side curb of the parking lot blocking the parking lot circulation roadway, or park on the sidewalk. None of these parking options is desirable from a vehicular or pedestrian standpoint.

## **LOCAL ECONOMY AND LAND USE**

The land around Fort McHenry is a mix of residential, business, and manufacturing uses. Many of the manufacturing areas are located across the water from the Park. The immediate area is comprised primarily of residential and commercial developments. The United States Naval Reserve (USNR) and the COE both operate on properties directly adjacent to the Park.

The Locust Point area is undergoing a number of development projects that will bring new business and residents to the area. Among these are a proposed new condominium complex that would increase the local population and its demographics.

Within the Park, economic resources are limited. The Park does not charge an entrance fee at the gate. Many of the Park's visitors come to appreciate the scenery or relax on the grass along the waterfront free of charge. The only portion of the Park that visitors are required to pay a fee for access is the historic Star Fort. Currently all Park land is used for interpretation, visitor experience, or support activities. The Evelyn Hill Corporation operates the Park's gift shop in the Visitor Center, and is the only concessionaire in the Park. The only food service offered within the Park comes from vending machines. There are some businesses in close proximity to the Park that offer food sales. These businesses are not, however, within easy walking distance.

The Park is also a stop for two water transit services. The National Historic Seaport of Baltimore and Ed Kane's Water Taxi/Harbor Boating, Inc. operate water transit services that dock near the Park and provide service to other sites around the harbor.

# ENVIRONMENTAL CONSEQUENCES

## INTRODUCTION

This section describes the environmental consequences associated with the alternatives presented. It is organized by impact topic, which distills the issues and concerns into distinct subjects for discussion and analysis. National Environmental Policy Act (NEPA) requires consideration of context, intensity, and duration when evaluating adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate for impacts. National Park Service (NPS) policy also requires that impairment of resources be evaluated in all environmental documents; therefore, a discussion of impairment is also included for each impact topic.

## METHODOLOGY FOR ASSESSING IMPACTS

As required by NEPA, potential impacts are described in terms of type (beneficial or adverse), context (site-specific, local, or regional), duration (short-term or long-term), and level of intensity (negligible, minor, moderate, or major). Overall, the impact analyses and conclusions presented in this section were based on a review of existing Fort McHenry literature and studies, information provided by experts within the Park and other agencies, professional judgments and staff insights, field observations, consultations with the Maryland State Historic Preservation Officer (SHPO), and public input.

### TYPE

**Beneficial:** A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

**Adverse:** A change that moves the resource away from a desired condition or detracts from its appearance or condition.

**Direct:** An impact that is caused by an action and occurs at the same time and place.

**Indirect:** An impact that is caused by an action but is later in time or farther removed in distance, but still reasonably foreseeable.

## CONTEXT

Context is the affected environment within which an impact would occur, such as local, park-wide, regional, global, affected interests, society as a whole, or any combination thereof. Context is variable and depends on the circumstances involved with each impact topic.

**Site-specific:** The impact would affect the project site.

**Local:** The impact would affect the Park.

**Regional:** The impact would affect localities, cities, or towns surrounding the Park.

## DURATION

For all resources and values, the duration of impacts in this document is defined as follows:

**Short-term:** Impacts that occur only during construction or last less than one year.

**Long-term:** Impacts that last longer than one year.

## LEVEL OF INTENSITY

Because level of intensity definitions (negligible, minor, moderate, or major) vary by impact topic, they are provided separately for each impact topic.

## IMPAIRMENT

In addition to determining the environmental consequences of the preferred and other alternatives, *NPS Management Policies 2001* (NPS 2000) and *Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision-Making*, require analysis of potential impacts to determine whether or not those actions would impair Park resources.

A fundamental purpose of the NPS, as stated in its Organic Act (1916) and reaffirmed by the General Authorities Act (1970), as amended in 1978, is a mandate to conserve park resources and values. However, the laws do give the NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources and values. An impact would be more likely to constitute impairment to the extent it affects a resource or value whose conservation is:

- (1) Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the Park;
- (2) Key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park; or
- (3) Identified as a goal in the Park's general management plan or other relevant NPS planning documents.

Impairment may result not only from NPS activities in managing the Park, but also visitor activities or activities undertaken by concessionaires, contractors, and others operating within the Park. An impairment determination is provided for each impact topic, where appropriate, within the conclusion section of each alternative.

## CUMULATIVE IMPACTS

Impacts can be direct, indirect, or cumulative. As previously noted, direct impacts are caused by an action, and occur at the same time and place as that action, while indirect impacts are caused by the action, occur later or farther away, but are still reasonably foreseeable. Cumulative impacts are defined as impacts which result when the impact of the proposed action is added to the impacts of other present and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for all federal projects.

To determine the potential cumulative impacts, existing and future projects at Fort McHenry and in the surrounding area were identified including lands administered by the NPS; the State of Maryland; and Baltimore City and County. Projects were determined by meetings and phone calls with county and town governments as well as state land managers. Potential projects identified as cumulative actions included any planning or development activity currently being implemented or that would be implemented in the reasonably foreseeable future.

The following projects were identified as having potential cumulative impacts on Fort McHenry projects:

***Water Battery Display.*** Fort McHenry is in the process of constructing a Water Battery Exhibit between the Star Fort and the Seawall to further interpret maritime history of the Chesapeake Bay, as well as the British naval bombardment of Fort McHenry in 1814. The final product will include several replica naval cannons and one 1809 French naval gun mounted on a platform east of the Fort. This project will potentially impact the historic landscape as well as visitor use and experience.

***Wetland Mitigation Area.*** The Maryland Port Authority has completed rehabilitation efforts at the wetland mitigation area adjacent to the Park. On going work includes repairs to unclog drainage pipes thereby reestablishing the flow regime in the tidal wetland. When complete, the National Aquarium will assist in replanting lost vegetation at the site. This project would have the potential to impact vegetation; floodplains; surface waters and Chesapeake Bay resources; and visual resources.

***Wallace Street Pier.*** C. Steinweg/Erasmus Properties is planning to enlarge its Wallace Street pier located on the northeast side of the peninsula. This project has the potential to impact floodplains; surface waters and Chesapeake Bay Resources; as well as local economy and land use.

***Dredging Baltimore Harbor.*** The Baltimore District Army Corps of Engineers in association with the Maryland Port Authority completed an Environmental Impact Statement for the dredging and dredge material management for the Baltimore Harbor. The proposed action evaluated in that document includes

maintenance dredging of the two navigation channels near Fort McHenry. The project has the potential to impact surface waters and Chesapeake Bay Resources; hazardous materials; as well as local economy and land use.

***Locust Point Development.*** Several development projects for the Locust Point area have been proposed, including a large condominium development. These developments could alter the demographics and/or character of the area. The project could impact soils and topography, vegetation, hazardous materials, archeological resources, and local economy and land use.

***Key Highway extension.*** Plans are currently underway to extend Baltimore's Key Highway. The extension would reroute one of the arterial roadways near the Park to provide better access to a mixed-use development area. In the process, traffic will be reduced on some local streets also near the Park. This project has the potential to impact transportation, circulation and site access, local economy, and land use.

***Maryland Port Administration Marine Terminal Development Plan: 2000 – 2010.*** The Maryland Port Administration (MPA) is in the process of completing its Marine Terminal Development Plan. This plan outlines goals and objectives for seven ports within Baltimore Harbor, including North and South Locust Point. MPA goals discussed in this document include becoming the largest automobile port on the east coast, doubling the volume of steel handled at its facilities, and sustaining and growing its container business. Specific plans for the Locust Point ports includes increasing storage and processing space to handle predicted increases in steel, timber, and containers. Documents specific to the development of each of these ports are currently being developed (MPA 2000). This project would have the potential to impact, soils, vegetation, floodplains, surface waters and Chesapeake Bay Resources, hazardous materials, archeological resources, visual resources, park operations and infrastructure, local economy and land use.

***2014 Anniversary of the Battle of Baltimore.*** In 2014, Fort McHenry will celebrate the 200<sup>th</sup> anniversary of the Battle of Baltimore. The event is expected to draw a high number of visitors to the Park and surrounding area. The project has the potential to impact visitor use and experience, park operations and infrastructure, as well as local economy and land use.

The cumulative impact of these actions are evaluated in conjunction with the impacts of a particular alternative on natural resources, cultural resources, visitor uses, or the economic environment. Because some of these actions are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project.

## NATURAL AND PHYSICAL RESOURCES

### SOILS AND TOPOGRAPHY

#### METHODOLOGY

All available information on soils and topography potentially impacted in various areas of the Park was compiled and evaluated for this document. Where possible, map locations of sensitive soils were compared with locations of proposed developments and modifications of existing facilities. Predictions about short- and long-term site impacts were based on previous projects with similar soils as well as recent studies. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** Soils and/or topography would not be affected or the impacts to soils and/or topography would be below or at the lower levels of detection. Any impacts to soils and/or topography would be slight.
- Minor:** The impacts to soils and/or topography would be detectable, and impacts to soil area and/or topography would be small. Mitigation may be needed to offset adverse impacts and would be relatively simple to implement and likely be successful.
- Moderate:** The impacts on soils and/or topography would be readily apparent and result in a change to the soil character and/or topography over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and likely be successful.
- Major:** The impacts on soils and/or topography would be readily apparent, and would substantially change the character of the soils and/or topography over a large area in and out of the Park. Mitigation measures to offset adverse impacts would be needed, extensive, and their success could not be guaranteed.

#### IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, no changes would be made to the current management system of the Park's natural resources. At this time, there are no circumstances that threaten soils and/or topography within the Park. Therefore, the **No Build Alternative** would have no impact on soils and/or topography.

##### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on soils and topography include long-term, negligible to minor, adverse impacts from construction and development activities at the Locust Point developments and the goals listed in the MPA Marine Terminal Development Plan. These impacts would result in soil removal or grading, and would be confined to the construction process. Overall, these projects would have a long-term, minor, adverse impact to soils. The **No Build Alternative** would not contribute to these long-term, minor, adverse impacts.

### *Conclusion*

Overall the **No Build Alternative** would have **no impact** to soils and/or topography and would not contribute to long-term, minor, adverse cumulative impacts. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to soils and/or topography.

### **IMPACTS OF ALTERNATIVE B**

All soils in and around Fort McHenry have been disturbed at some point during history, primarily through fill and landscaping activities. Under **Alternative B**, approximately 30,000 square feet of soil would be impacted. Of this, approximately 15,500 square feet would be impacted for the following: demolition of the maintenance facility, conversion of the maintenance area into a parking lot, construction of an administration building along the historic wall, and the expansion of the current Visitor Center. Additional impacts to soils would occur if the historic road trace is developed requiring realignment of the Park road and parking lot. Fill material would be required for this alternative in order to connect the expansion to the current site grading. This fill would not, however, be placed within any floodplain. The remaining soil and/or topography impacts would be associated with the estimated 15,000 square feet excavated for the BMPs. The BMPs would be dug to a depth no greater than four feet, creating an estimated 60,000 cubic feet of excavated soil which would be replaced with a mix of sand, organic material, and clay. The excavated soil could then be used in other locations throughout the Park for landscaping or other activities. The impact of these actions on soils and topography would be long-term, minor, and adverse.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on soils and topography include long-term, negligible to minor, adverse impacts from construction and development activities at the Locust Point developments and the goals listed in the MPA Marine Terminal Development Plan. These impacts would result in soil removal or grading, and would be confined to the construction process. Overall, these projects would have a long-term, minor, adverse impact to soils. **Alternative B** would contribute noticeable increments to these long-term, minor, adverse impacts.

### *Conclusion*

The overall impact to soils and/or topography under **Alternative B** would be **long-term, minor, and adverse** and would contribute noticeable increments to long-term, minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to soils and/or topography.

## IMPACTS OF ALTERNATIVE C

Under **Alternative C**, an estimated 84,700 square feet would be disturbed. Of this, 64,700 square feet of soil would be compromised by the demolition of the maintenance facility, the conversion of the maintenance area into a parking lot, the construction of an administration building along the historic wall, demolition of the current Visitor Center, and construction of the new Education/Administration facility. The development of a permanent parking terrace over the current overflow lot would constitute approximately 48,500 square feet of this impact. Additional impacts to soils would occur if the historic road trace is developed requiring realignment of the Park road and parking lot. Fill would be used in this alternative to adjust the topography to the new construction. The remaining 20,000 square feet would be impacted by the construction of the BMPs. The BMPs would be dug to a depth no greater than four feet, resulting in approximately 80,000 cubic feet of excavated soil which would be replaced with a mix of sand, organic material, and clay. The excavated soil could then be used around the site for landscaping or other activities. In this alternative, a small portion of the new construction would intrude into floodplain. The impact of these actions on soils and topography would be long-term, minor, and adverse.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on soils and topography include long-term, negligible to minor, adverse impacts from construction and development activities at the Locust Point developments and the goals listed in the MPA Marine Terminal Development Plan. These impacts would result in soil removal or grading, and would be confined to the construction process. Overall, these projects would have a long-term, minor, adverse impact to soils. **Alternative C** would contribute noticeable increments to these long-term, minor, adverse impacts.

### *Conclusion*

The overall impact to soils and/or topography under **Alternative C** would be **long-term, minor, and adverse** and contribute noticeable increments to long-term, minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to soils and/or topography.

## IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE

All soils in and around Fort McHenry have been disturbed at some point during history, primarily through fill and landscaping activities. Under **Alternative D**, an estimated 77,400 square feet would be impacted. Of this, 63,400 square feet would consist of the demolition of the maintenance facility and conversion of the lot into a parking lot. The new Education/Administration facility would be constructed, and the historic road trace would be developed requiring realignment of the Park road and parking lot. Development of a parking terrace (paved or covered) would contribute approximately 48,500 square feet of this total impact. Fill material would also be required in this alternative to accommodate the large amount of construction. The remaining 14,000 square feet would be impacted through the construction of the BMPs. The BMPs would be dug to a depth no greater than four feet, resulting in approximately 56,000 cubic feet

of excavated soil which would be replaced with a mix of sand, organic material, and clay. The excavated soil could then be used throughout the Park for landscaping and other activities. There would be no fill in the floodplain. The impact of these actions on soils and/or topography would be long-term, minor, and adverse.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on soils and topography include long-term, negligible to minor, adverse impacts from construction and development activities at the Locust Point developments and the goals listed in the MPA Marine Terminal Development Plan. These impacts would result in soil removal or grading, and would be confined to the construction process. Overall, these projects would have a long-term, minor, adverse impact to soils. **Alternative D** would contribute noticeable increments to these long-term, minor, adverse impacts.

#### *Conclusion*

The overall impact to soils and/or topography under **Alternative D** would be **long-term, minor, and adverse** and **Alternative D** would contribute noticeable increments to long-term, minor, adverse cumulative impacts. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to soils and/or topography.

## **VEGETATION**

### **METHODOLOGY**

All available information on vegetation in Fort McHenry potentially impacted by these alternatives was compiled for this document. Predictions about short- and long-term site impacts were based on previous projects with similar vegetation. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** The action would introduce barely perceptible increases in man-made structures and development. The change would be so small or localized that it would have no measurable or perceptible consequences on the nature and quantity of vegetation and/or green space.
- Minor:** The action would introduce clearly perceptible man-made additions and ensuing reductions in vegetation and/or green space. These additions would include structures that affect a relatively small portion of green space, and have barely perceptible consequences on the nature and quantity of vegetation and/or green space.
- Moderate:** The action would introduce appreciable man-made additions and ensuing reductions in vegetation and/or green space. These actions would include facilities and other man-made structures that would affect a relatively moderate portion of green space by changing the amount or nature of the vegetation in the project area.

Major: The action would introduce extensive man-made additions and impacts that affect the entire Park's green space including introducing multiple facilities and/or structures, and changes to the nature of the vegetation. Such actions would completely change the nature, amount, and layout of the Park's green space.

## **IMPACTS OF THE NO BUILD ALTERNATIVE**

Under the **No Build Alternative**, current natural resource management practices would be retained. Part of this practice would include not replacing dead or damaged trees. Therefore, the **No Build Alternative** would have no impact on vegetation.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on vegetation within the Park include the Wetland mitigation area, and the Locust Point developments and MPA port projects. The wetland project would introduce new vegetation to the area resulting in long-term, moderate, beneficial impacts on vegetation. The two development projects could result in loss of green space as new facilities were added. However, it would be possible for plantings and landscaping to mitigate this loss. Short- and long-term, negligible to minor, adverse impacts would result. The overall impact from these projects would be long-term, minor, and beneficial. The **No Build Alternative** would not contribute to these long-term, minor, beneficial impacts.

### *Conclusion*

The **No Build Alternative** would have **no impact** on vegetation, and would not contribute to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to vegetation.

## **IMPACTS OF ALTERNATIVE B**

Under **Alternative B**, approximately 36,100 square feet of green space would be lost: 9,600 from realignment of the roadway and parking lot, 3,800 from the expanded Visitor Center, 7,730 from the administration building and associated parking lot, and 15,000 from the construction of stormwater BMPs. This loss would consist of maintained lawn and approximately 25-30 trees and/or shrubs. Impacts would be mitigated by the additional plantings described in the Alternatives section of this document. While these plantings would replace the lost trees and/or shrubs, all of the lawn would not be replaced, as much of it would be converted to impervious surface. Additional grass area would also be temporarily impacted as the new trees and/or shrubs were planted. **Alternative B** would have a long-term, minor, adverse impact to vegetation.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on vegetation within the Park include long-term, moderate, beneficial impacts from the wetland mitigation area which would introduce new vegetation to the area. Short- and long-term, negligible to minor, adverse impacts from the Locust Point developments and the MPA port projects would also be encountered as the two development projects could result in loss of green space as new facilities were added. However, it would be possible for plantings and landscaping to mitigate this loss. The overall impact from these projects would be long-term, minor, and beneficial. **Alternative B** would contribute noticeable increments to these long-term, minor, beneficial cumulative impacts.

### *Conclusion*

The overall impact to vegetation under **Alternative B** would be **long-term, minor, and adverse** and would contribute noticeable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to vegetation.

## **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, an estimated 86,800 square feet of green space would be impacted: 9,600 from roadway and parking lot realignment, 9,600 for the new Education/Administration facility, 7,800 for the new administration building and associated parking, and approximately 48,500 through the development of a paved parking terrace over the current overflow parking area. The installation of stormwater BMPs would impact an estimated additional 20,000 square feet. This loss would consist primarily of maintained lawn and approximately 40-50 trees and/or shrubs. The impact to grasses would be partially offset by the gain of an estimated 8,700 square feet of green space through the demolition of the Visitor Center, while the loss of trees and/or shrubs would be mitigated by new plantings described in the Alternatives section of this document. However, it would not be possible to mitigate the loss of grass area entirely, as those areas lost would be converted to impervious surface. Some additional temporary impacts to the Fort McHenry lawn would occur while new trees and/or shrubs were planted. **Alternative C** would have a long-term, moderate, adverse impact to vegetation.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on vegetation within the Park include long-term, moderate, beneficial impacts from the wetland mitigation area which would introduce new vegetation to the area. Short- and long-term, negligible to minor, adverse impacts from the Locust Point developments and the MPA port projects would also be encountered as the two development projects could result in loss of green space as new facilities were added. However, it would be possible for plantings and landscaping to mitigate this loss. The overall impact from these projects would be long-term, minor, and beneficial. **Alternative C** would contribute appreciable increments to these long-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to vegetation under **Alternative C** would be **long-term, moderate, and adverse**, and would contribute imperceptible increments to cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to vegetation.

### **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, approximately 20,300 square feet of green space would be impacted. This impact would consist of approximately 9,600 square feet for parking lot realignment and approximately 5,400 square feet for the new Education/Administration facility. Under this alternative, the Park would gain 8,700 square feet of green space by demolishing the old Visitor Center, however they would lose and estimated 60-70 trees and/or shrubs. The installation of BMPs would require an estimated additional impact of 14,000 square feet. The area currently occupied by the Visitor Center could be filled with grasses, trees, and shrubs to help mitigate the loss as described in the Alternatives section of this document. If the paved parking terrace (Option 1) was implemented, an additional 48,500 square feet of green space would be impacted. This impact is more thoroughly measured under **Alternative C**. However, if the covered terrace was implemented (Option 2), the 48,500 square feet would only be temporary. The temporary loss would be replaced through new plantings. Additional temporary impacts to the lawn would occur while the new trees and/or shrubs were being planted. **Alternative D** would have a long-term, minor, adverse impact to vegetation.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on vegetation within the Park include long-term, moderate, beneficial impacts from the wetland mitigation area which would introduce new vegetation to the area. Short- and long-term, negligible to minor, adverse impacts from the Locust Point developments and the MPA port projects would also be encountered as the two development projects could result in loss of green space as new facilities were added. However, it would be possible for plantings and landscaping to mitigate this loss. The overall impact from these projects would be long-term, minor, and beneficial. **Alternative D** would contribute noticeable increments to these long-term, minor, beneficial cumulative impacts.

### *Conclusion*

The overall impact to vegetation under **Alternative D** would be **long-term, minor, and adverse**; and would contribute noticeable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to vegetation.

## FLOODPLAINS

### METHODOLOGY

Floodplains are defined by the NPS Floodplain Management Guideline (NPS 2003a) as “the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, and including, at a minimum, that area subject to temporary inundation by a regulatory flood.” The NPS has adopted the policy of preserving floodplain values and minimizing potentially hazardous conditions associated with flooding (NPS 2003a). The planning team based the impact analysis and the conclusions for possible impacts to 100- and 500-year floodplains in this document on the review of existing literature and studies, information provided by experts in the NPS and other agencies, and Fort McHenry staff insights and professional judgment. Where possible, map locations of 100- and 500-year floodplains were compared with locations of proposed developments and modifications of existing facilities. Predictions about short- and long-term site impacts were based on previous studies of impacts to 100- and 500-year floodplains from similar projects and recent scientific data. The thresholds of change for the intensity of an impact are defined as follows:

- Negligible:** There would be no change in the ability of a floodplain to convey floodwaters, or its values and functions. Project would not contribute to enhancing flood events.
- Minor:** Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Project would not contribute to the flood. No mitigation would be needed.
- Moderate:** Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Project could contribute to the flood. The impact could be mitigated by modification of proposed facilities in floodplains.
- Major:** Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and widespread. Project would contribute to the flood. The impact could be not be mitigated by modification of proposed facilities in floodplains.

According to NPS Procedural Manual 77-2: *Floodplain Management*, a Statement of Findings (SOF) is required when an action is to occur within a floodplain. The SOF is generally attached to the EA associated with the project and provides specifics as to why the proposed action was selected over one with fewer impacts to floodplains (NPS 2003a).

Actions within a floodplain are categorized in three classes depending on their location and nature of development. A Class I action is defined as one that consists of administrative, residential, warehouse, and maintenance buildings. Class I actions require an SOF only when they fall within the 100-year floodplain (NPS 2003). Because the action proposed in this document does not fall within the 100-year floodplain, it does not require an SOF.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, no new Park development would occur within the floodplain, and the structures within the floodplain would remain. These structures are limited to a small portion of the parking lot, the picnic area, and the Seawall Trail none of which present a threat to the floodplain. However, the City-owned dock would be threatened by potential future flood events. Although the dock is not Park property, it is directly adjacent to the property and debris from it could reach the Park during a flood. Because this dock has been within the floodplain for sometime and would not result in changes to the floodplain features, the **No Build Alternative** would have a long-term, negligible, adverse impact on floodplains.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on floodplains within the Park include long-term, minor, beneficial impacts from the wetland mitigation area and long-term, negligible to minor, adverse impacts from the Wallace Street Pier project and the MPA port developments. Improvements to the wetland mitigation area would improve the floodplain's natural abatement abilities, while the enhanced pier would be built on pilings, and should not contribute to enhanced flood events. Impacts associated with the MPA developments would depend on size and specific location, but could result in development within the 500- or 100-year floodplain. The overall impact from these actions would be long-term, negligible to minor, and adverse. The **No Build Alternative** would contribute imperceptible increments to these long-term, negligible to minor, adverse cumulative impacts.

### *Conclusion*

The overall impact to floodplains under the **No Build Alternative** would be **long-term, negligible, and adverse** and would contribute imperceptible increments to long-term, negligible to minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to floodplains.

## IMPACTS OF ALTERNATIVE B

Under **Alternative B**, most development would be kept out of the floodplain. Many of the structures already in the floodplain, described under the **No Build Alternative**, would remain. The restroom facilities located next to the parking lot, however would be removed, and placed on higher ground near the Visitor Center, and the realignment of the roadway and parking lot would involve an estimated 750 square foot intrusion into the 500-year floodplain. Although this would constitute a change in the floodplain, it would not be significant enough to alter the floodplain characteristics. Therefore, **Alternative B** would have a long-term, negligible, adverse impact on floodplains.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on floodplains within the Park include long-term, minor, beneficial impacts from the wetland mitigation area and long-term, negligible to minor, adverse impacts from the Wallace Street Pier project and the MPA port developments. Improvements to the wetland mitigation area would improve the floodplain's natural abatement abilities, while the enhanced pier would be built on pilings and should not contribute to enhanced flood events. Impacts associated with the MPA developments would depend on size and specific location, but could result in development within the 500- or 100-year floodplain. The overall impact from these actions would be long-term, negligible to minor, and adverse. **Alternative B** would contribute imperceptible increments to these long-term, negligible to minor, adverse impacts.

#### *Conclusion*

The overall impact to floodplains under **Alternative B** would be **long-term, negligible, and adverse** and it would contribute imperceptible increments to long-term, negligible to minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to floodplains.

### **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, the northern portion of the new Education/Administration building, encompassing approximately 2,400 square feet, would fall within the 500-year floodplain. There would be fill material in the 500-year floodplain in this alternative as well. Based on the relatively small intrusion made into the floodplain by this development, **Alternative C** would have a long-term, negligible, adverse impact on floodplains.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on floodplains within the Park include minor, beneficial impacts from the wetland mitigation area and negligible to minor, adverse impacts from the Wallace Street Pier project and the MPA port developments. Improvements to the wetland mitigation area would improve the floodplain's natural abatement abilities, while the enhanced pier would be built on pilings and should not contribute to enhanced flood events. Impacts associated with the MPA developments would depend on size and specific location, but could result in development within the 500- or 100-year floodplain. The overall impact from these actions would be long-term, negligible to minor, and adverse. **Alternative C** would contribute imperceptible increments to this long-term, negligible to minor, adverse impact.

#### *Conclusion*

The overall impact to floodplains under **Alternative C** would be **long-term, negligible, and adverse** and would contribute imperceptible increments to long-term, negligible to minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1)

necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to floodplains.

## **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, approximately 600 square feet of the new development would be located within the 500-year floodplain. The footprint of this development would be placed on the site so that minimal grading and no fill would occur in the floodplain. Detailed site grading and building location would be required to keep fill out of the floodplain.

The proposed building would be designed to keep critical resources, such as the Park's collections, out of the portion of the building that was in the floodplain. Furthermore, while some of the building would fall within the 500-year floodplain, the floor itself would be raised above this elevation. Based on the relatively small intrusion made into the floodplain by this development, **Alternative D** would have a long-term, negligible, adverse impact on floodplains.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on floodplains within the Park include long-term, minor, beneficial impacts from the wetland mitigation area and long-term, negligible to minor, adverse impacts from the Wallace Street Pier project and the MPA port developments. Improvements to the wetland mitigation area would improve the floodplain's natural abatement abilities, while the enhanced pier would be built on pilings and should not contribute to enhanced flood events. Impacts associated with the MPA developments would depend on size and specific location, but could result in development within the 500- or 100-year floodplain. The overall impact from these actions would be long-term, negligible to minor, and adverse. **Alternative D** would contribute imperceptible increments to these long-term, negligible to minor, adverse impacts.

### *Conclusion*

The overall impact to floodplains under **Alternative D** would be **long-term, negligible, and adverse** and it would contribute imperceptible increments to long-term, negligible to minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to floodplains.

## **SURFACE WATERS AND CHESAPEAKE BAY RESOURCES**

### **METHODOLOGY**

The project could impact the Chesapeake Bay Critical Area as defined by the State of Maryland's Chesapeake Bay Critical Area Law. This area is defined as located within 1,000 feet of the Chesapeake Bay, its tributaries

to the head of tide, tidal wetlands, plus all land and water areas. Almost all of Fort McHenry falls within this 1,000 foot zone. As a result, the Chesapeake Bay Critical Area would be impacted by any construction. Coordination with local, state, and federal authorities would occur to ensure that this impact is properly mitigated.

The *NPS Management Policies 2001* state that the National Park Service will “take all necessary actions to maintain or restore the quality of surface waters and ground waters within the Parks consistent with the Clean Water Act and all other applicable federal, state, and local laws and regulations” (sec. 4.6.3).

A water quality standard defines the water quality goals of a water body by designating uses of the water, by setting minimum criteria to protect the uses, and by preventing degradation of water quality through antidegradation provisions. Part of this policy (40 CFR 131.12 (a) (2)) strives to maintain water quality at existing levels if it is already better than the minimum criteria. The anti-degradation policy however is only one portion of a water quality standard. Anti-degradation should not be interpreted to mean that “no degradation” can or will occur, as even in the most pristine waters, degradation may be allowed for certain pollutants as long as it is temporary and short-term.

Other considerations in assessing the magnitude of water quality are impacts on those resources dependent on a certain quality or condition of the water. Sensitive aquatic organisms, submerged aquatic vegetation, riparian areas, and wetlands are all affected by changes in water quality from direct and indirect sources.

Given the above water quality issues and methodology and assumptions, the following impact thresholds were established in order to describe the relative changes in water quality under the various alternatives.

- Negligible:** Impacts are chemical, physical, or biological impacts that would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.
- Minor:** Impacts (chemical, physical, or biological) would be detectable, but would be well below water quality standards or criteria and within historical or desired water quality conditions.
- Moderate:** Impacts (chemical, physical, or biological) would be detectable, but would be at or below water quality standards or criteria and within historical or desired water quality conditions.
- Major:** Impacts (chemical, physical, or biological) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be slightly and singularly exceeded on a short-term basis.

## **IMPACTS OF THE NO BUILD ALTERNATIVE**

Under the **No Build Alternative**, there would be no changes made to the land use or activities carried out at Fort McHenry that could impact water quality. Current mitigation measures would continue to meet

required water quality standards; however no additional steps would be taken to improve stormwater management at the Park. The **No Build Alternative** would have a long-term, negligible, adverse impact on surface waters and Chesapeake Bay Resources.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on surface waters and Chesapeake Bay Resources within the Park include long-term, minor, beneficial impacts from the wetland mitigation area. Other impacts include the dredging of Baltimore Harbor, as well as the Wallace Street Pier project and the MPA port developments. The later activities could have various impacts depending on their final design. Dredging activities currently use an apron to surround the dredged area and contain displaced sediment. The apron is left in place until the sediment settles thus avoiding spreading sedimentation into the surrounding area. As long as this practice is maintained, and no unexpected events occur, the impact from dredging would be short-term. If development is non-water dependent, such as the improvements at Fort McHenry, the projects would be required to comply with the same stormwater mitigation as the NPS. If, however, these projects are water dependent (piers), they may be developed without stormwater mitigation (the land owner would be required to pay a fee relative to the amount of area left unvegetated). If stormwater mitigation occurs, such development could be noticeably beneficial to the surrounding area. If not, then development would increase the pollutant load and bring more ships into the area. The increase in ships would result in the potential for increased emissions, fuel leaks, and other spills. While the use of improved technologies could avoid some of these spills, it is not possible to fully measure the type and extent of these impacts until the final plans are set and technologies are selected. Plans that avoid impacts to the natural or man-made buffers around the local waterways would be beneficial, as would select technologies for ships and construction materials that present the lowest threat of spills or pollution. Therefore, at this time it is only possible to say that these projects could range from short-term, minor, and adverse, to long-term, minor, and beneficial, to long-term, moderate, and adverse. Based on the small size of the Fort McHenry project relative to the surrounding Baltimore area and the Chesapeake Bay, the **No Build Alternative** would contribute imperceptible increments to these cumulative impacts.

#### *Conclusion*

The overall impact to surface waters and Chesapeake Bay Resources under the **No Build Alternative** would be **long-term, negligible, and adverse** and it would contribute imperceptible increments to cumulative impacts. Because there would be no major, adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to surface waters and Chesapeake Bay Resources.

### **IMPACTS OF ALTERNATIVE B**

Under **Alternative B**, approximately 15,500 square feet of impervious surface would be introduced to Fort McHenry. Although no new pollutants would be added to the area, the increase in impervious surface

would have the potential to introduce additional pollutants to the surrounding waterways. However, due to stormwater management and erosion control mitigation efforts described earlier in this document, this increased pollution would be avoided and pre-construction stormwater runoff pollutant levels would be reduced by 10%. As a result, **Alternative B** would have a long-term, minor, beneficial impact on surface waters and Chesapeake Bay Resources.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on surface waters and Chesapeake Bay Resources within the Park include minor, beneficial impacts from the wetland mitigation area. Other impacts include the dredging of Baltimore Harbor, as well as the Wallace Street Pier project and the MPA port developments. The later activities could have various impacts depending on their final design. Dredging activities currently use an apron to surround the dredged area and contain displaced sediment. The apron is left in place until the sediment settles thus avoiding spreading sedimentation into the surrounding area. As long as this practice is maintained, and no unexpected events occur, the impact from dredging would be short-term. If development is non-water dependent, such as the improvements at Fort McHenry, the projects would be required to comply with the same stormwater mitigation as the NPS. If however, these projects are water dependent (piers), they may be developed without stormwater mitigation (the land owner would be required to pay a fee relative to the amount of area left unvegetated). If stormwater mitigation occurs, such development could be noticeably beneficial to the surrounding area. If not, then development would increase the pollutant load and bring more ships into the area. The increase in ships would result in the potential for increased emissions, fuel leaks, and other spills. While the use of improved technologies could avoid some of these spills, it is not possible to fully measure the type and extent of these impacts until the final plans are set and technologies are selected. Plans that avoid impacts to the natural or man-made buffers around the local waterways would be beneficial, as would select technologies for ships and construction materials that present the lowest threat of spills or pollution. Therefore, at this time it is only possible to say that these projects could range from short-term, minor, and adverse, to long-term, minor, and beneficial, to long-term, moderate, and adverse. Based on the small size of the Fort McHenry project relative to the surrounding Baltimore area and the Chesapeake Bay, **Alternative B** would contribute imperceptible increments to these cumulative impacts.

#### *Conclusion*

The overall impact to surface waters and Chesapeake Bay Resources under **Alternative B** would be **long-term, minor, and beneficial**, and it would contribute imperceptible increments to cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to surface waters and Chesapeake Bay Resources.

### **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, an estimated 66,800 square feet of impervious surface would be introduced to Fort McHenry with the paved parking terrace covering approximately 48,500 square feet of this total impact.

Although no new pollutants would be added to the area, the increase in impervious surface would have the potential to introduce additional pollutants to the surrounding waterways. Although this development is greater than **Alternative B**, mitigation efforts described earlier in this document would be increased proportionally, and would allow the project to comply with all relevant environmental standards, and reduce the current stormwater pollutant load. As a result, **Alternative C** would have a long-term, minor, beneficial impact on surface waters and Chesapeake Bay Resources.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on surface waters and Chesapeake Bay Resources within the Park include minor, beneficial impacts from the wetland mitigation area. Other impacts include the dredging of Baltimore Harbor, as well as the Wallace Street Pier project and the MPA port developments. The later activities could have various impacts depending on their final design. Dredging activities currently use an apron to surround the dredged area and contain displaced sediment. The apron is left in place until the sediment settles thus avoiding spreading sedimentation into the surrounding area. As long as this practice is maintained, and no unexpected events occur, the impact from dredging would be short-term. If development is non-water dependent, such as the improvements at Fort McHenry, the projects would be required to comply with the same stormwater mitigation as the NPS. If however, these projects are water dependent (piers), they may be developed without stormwater mitigation (the land owner would be required to pay a fee relative to the amount of area left unvegetated). If stormwater mitigation occurs, such development could be noticeably beneficial to the surrounding area. If not, then development would increase the pollutant load and bring more ships into the area. The increase in ships would result in the potential for increased emissions, fuel leaks, and other spills. While the use of improved technologies could avoid some of these spills, it is not possible to fully measure the type and extent of these impacts until the final plans are set and technologies are selected. Plans that avoid impacts to the natural or man-made buffers around the local waterways would be beneficial, as would select technologies for ships and construction materials that present the lowest threat of spills or pollution. Therefore, at this time it is only possible to say that these projects could range from short-term, minor, and adverse, to long-term, minor, and beneficial, to long-term, moderate, and adverse. Based on the small size of the Fort McHenry project relative to the surrounding Baltimore area and the Chesapeake Bay, **Alternative C** would contribute imperceptible increments to these cumulative impacts.

#### *Conclusion*

The overall impact to surface waters and Chesapeake Bay Resources under **Alternative C** would be **long-term, minor, and beneficial** and it would contribute imperceptible increments to cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to surface waters and Chesapeake Bay Resources.

## IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE

Under **Alternative D**, approximately 14,900 square feet of impervious surface would be introduced to Fort McHenry through the construction of the new Education/Administration facility and parking lot realignment. An additional 48,500 square feet of impervious surface would be introduced should Parking Option 1 be implemented. The impacts of this addition are analyzed more thoroughly under **Alternative C**. However, if the covered terrace (Option 2) was installed, much of the 48,500 square foot impact could be mitigated through new plantings on the terrace roof. The increase in alternative transportation required under this alternative compared to others would also result in fewer vehicular related pollutants being introduced to the area. Although no new pollutants would be added to the area, the increase in impervious surface would have the potential to introduce additional pollutants to the surrounding waterways. However, the project would be designed to comply with all relevant environmental standards by implementing appropriate mitigation efforts described in the Alternatives section of this document. These mitigation efforts would successfully reduce the current stormwater pollutant load. As a result, **Alternative D** would have a long-term, minor, beneficial impact on surface waters and Chesapeake Bay Resources.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on surface waters and Chesapeake Bay Resources within the Park include minor, beneficial impacts from the wetland mitigation area. Other impacts include the dredging of Baltimore Harbor, as well as the Wallace Street Pier project and the MPA port developments. The later activities could have various impacts depending on their final design. Dredging activities currently use an apron to surround the dredged area and contain displaced sediment. The apron is left in place until the sediment settles thus avoiding spreading sedimentation into the surrounding area. As long as this practice is maintained, and no unexpected events occur, the impact from dredging would be short-term. If development is non-water dependent, such as the improvements at Fort McHenry, the projects would be required to comply with the same stormwater mitigation as the NPS. If however, these projects are water dependent (piers), they may be developed without stormwater mitigation (the land owner would be required to pay a fee relative to the amount of area left unvegetated). If stormwater mitigation occurs, such development could be noticeably beneficial to the surrounding area. If not, then development would increase the pollutant load and bring more ships into the area. The increase in ships would result in the potential for increased emissions, fuel leaks, and other spills. While the use of improved technologies could avoid some of these spills, it is not possible to fully measure the type and extent of these impacts until the final plans are set and technologies are selected. Plans that avoid impacts to the natural or man-made buffers around the local waterways would be beneficial, as would select technologies for ships and construction materials that present the lowest threat of spills or pollution. Therefore, at this time it is only possible to say that these projects could range from short-term, minor, and adverse, to long-term, minor, and beneficial, to long-term, moderate, and adverse. Based on the small size of the Fort McHenry project relative to the surrounding Baltimore area and the Chesapeake Bay, **Alternative D** would contribute imperceptible increments to these cumulative impacts.

### *Conclusion*

The overall impact to surface waters and Chesapeake Bay Resources under **Alternative D** would be **long-term, minor, and beneficial** and it would contribute imperceptible increments to cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to surface waters and Chesapeake Bay Resources.

## **HAZARDOUS MATERIALS**

### **METHODOLOGY**

ACM – Asbestos-Containing Material    AST – Aboveground Storage Tank  
LBP – Lead-Based Paint                    UST – Underground Storage Tank

- Negligible:** An action that would have a very small impact on the risk to human health and the environment. The results of such actions would have no measurable impact. LBP is not present, ACM is not present, or is nonfriable and in good condition, and there are no USTs or ASTs present. A negligible impact for the build alternatives would be one where there was no impact or there are impacts to buildings with no ACM, LBP, or USTs.
- Minor:** Minor impacts would result from actions with relatively small impacts to human health and the environment. Minor impacts would require only slight remediation. LBP is present but intact, ACM is friable but in good condition, or non-friable and in fair to poor condition, and there are ASTs present and newly installed USTs (with leak protection) or USTs were removed with no indication of a risk of contamination. A minor impact for the build alternatives would be one that impacts one of the three areas of concern (ACM, LBP, or AST/USTs).
- Moderate:** Moderate impact would result from actions causing considerable impacts to human health and the environment. LBP is present and in poor condition, ACM is friable and in poor condition, and there is no documentation of the removal of USTs, USTs are present with no leak detection, there are old ASTs, or USTs were removed with indication of a risk of contamination (i.e., old tank removed, water in excavation). A moderate impact for the build alternatives would be one that impacts two of the three media of concern.
- Major:** Major impacts would result in an immediate change on the risk to human health and the environment. Known leaking UST or AST is present or contamination is observed during removal with no remediation. A major impact for the build alternatives would be one that impacts all three media of concern.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, those hazardous materials that currently exist within the Park would remain and no new materials would be introduced. The ACM and LBP found in the Visitor Center and Mission 66 duplex, respectively, would remain in good condition, intact, and undisturbed. The other hazardous materials located in the maintenance facility would continue to be monitored and protected to ensure no adverse impacts to health or safety occurred, and care would be taken to ensure future projects avoided impacts to hazardous materials. The **No Build Alternative** would have a long-term, negligible, beneficial impact on hazardous materials.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on hazardous materials within the Park include long-term, negligible to minor, adverse impacts from the dredging of Baltimore Harbor, the Locust Point developments, and the MPA port developments. Dredging the harbor has the potential to stir up hazardous pollutants that have been embedded in the floor of the harbor. Locust Point developments may encounter old structures with LBP, ACM, USTs, or ASTs, that would require proper management and removal. The MPA projects would have the potential to encounter LBP, ACM, USTs, or ASTs, that would be managed and removed, as well as the potential to introduce other hazardous materials to the area. Any new material would be properly managed and monitored to avoid threats to health and safety. The overall impact from these actions would be long-term, moderate, and adverse. The **No Build Alternative** would contribute imperceptible increments to these long-term, moderate, adverse impacts.

### *Conclusion*

The overall impact to hazardous materials under the **No Build Alternative** would be **long-term, negligible, and beneficial** and it would contribute imperceptible increments to long-term, moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to hazardous materials.

## IMPACTS OF ALTERNATIVE B

Under **Alternative B**, the current Visitor Center would be remodeled. ACM is present in the theater soundproofing and would require safety precautions during the project. Once these actions were complete, hazardous materials would be absent from all visitor contact areas. Also, the demolition of the Mission 66 maintenance building would allow for LBP to be removed from the windows and hazardous materials be moved to the other facility. Based on the Park's safety plan and other precautions taken to guard hazardous materials, such a move would present little to no threat. **Alternative B** would have a long-term, moderate, beneficial impact on hazardous materials.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on hazardous materials within the Park include long-term, negligible to minor, adverse impacts from the dredging of Baltimore Harbor, the Locust Point developments, and the MPA port developments. Dredging the harbor has the potential to stir up hazardous pollutants that have been embedded in the floor of the harbor. Locust Point developments may encounter old structures with LBP, ACM, USTs, or ASTs, that would require proper management and removal. The MPA projects would have the potential to encounter LBP, ACM, USTs, or ASTs, that would be managed and removed, as well as the potential to introduce other hazardous materials to the area. Any new material would be properly managed and monitored to avoid threats to health and safety. The overall impact from these actions would be long-term, moderate, and adverse. **Alternative B** would contribute appreciable increments to these long-term, moderate, adverse impacts.

#### *Conclusion*

The overall impact to hazardous materials under **Alternative B** would be **long-term, moderate, and beneficial**. It would contribute appreciable increments to long-term, moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to hazardous materials.

### **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, both the current Visitor Center, as well as a portion of the existing maintenance facility would be demolished. These structures contain ACM and LBP, respectively, and would require safety precautions during demolition. Also, the demolition of part of the maintenance facility would allow for hazardous materials be moved to the other facility. Based on the Park's safety plan and other precautions taken to guard hazardous materials, such a move would present little to no threat. Once these actions were complete, hazardous materials would be absent from all visitor contact areas. Overall, **Alternative C** would have a long-term, moderate, beneficial impact on hazardous materials.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on hazardous materials within the Park include negligible to minor impacts from the dredging of Baltimore Harbor, the Locust Point developments, and the MPA port developments. Dredging the harbor has the potential to stir up hazardous pollutants that have been embedded in the floor of the harbor. Locust Point developments may encounter old structures with LBP, ACM, USTs, or ASTs, that would require proper management and removal. The MPA projects would have the potential to encounter LBP, ACM, USTs, or ASTs, that would be managed and removed, as well as the potential to introduce other hazardous materials to the area. Any new material would be properly managed and monitored to avoid threats to health and safety. The overall impact from these actions would be long-term, moderate, and adverse. **Alternative C** would contribute appreciable increments to these long-term, moderate, adverse impacts.

*Conclusion*

The overall impact to hazardous materials under **Alternative C** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to long-term, moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to hazardous materials.

**IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, both the current Visitor Center, as well as a portion of the existing maintenance facility would be demolished. These structures contain ACM and LBP, respectively, and would require safety precautions during demolition. Also, the demolition of part of the maintenance facility would require hazardous materials be moved to the other facility. Based on the Park's safety plan and other precautions taken to guard hazardous materials, such a move would present little to no threat. Once these actions were complete, hazardous materials would be absent from all visitor contact areas. Overall, **Alternative D** would have a long-term, moderate, beneficial impact on hazardous materials.

*Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on hazardous materials within the Park include long-term, negligible to minor, adverse impacts from the dredging of Baltimore Harbor, the Locust Point developments, and the MPA port developments. Dredging the harbor has the potential to stir up hazardous pollutants that have been embedded in the floor of the harbor. Locust Point developments may encounter old structures with LBP, ACM, USTs, or ASTs, that would require proper management and removal. The MPA projects would have the potential to encounter LBP, ACM, USTs, or ASTs, that would be managed and removed, as well as the potential to introduce other hazardous materials to the area. Any new material would be properly managed and monitored to avoid threats to health and safety. The overall impact from these actions would be long-term, moderate, and adverse. **Alternative D** would contribute appreciable increments to these long-term, moderate, adverse impacts.

*Conclusion*

The overall impact to hazardous materials under **Alternative D** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to long-term, moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to hazardous materials.

## CULTURAL RESOURCES

The CEQ regulations that implement NEPA require assessment of impacts to cultural as well as natural resources. In this DCP/EA/AOE, impacts to cultural resources are described in terms of type, context, duration, and intensity, as described above. This DCP/EA/AOE is also being used to comply with the requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

## ARCHEOLOGICAL RESOURCES

### METHODOLOGY

Certain important research questions about human history can only be answered by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. An archeological site(s) can be eligible for listing on the Nation Register of Historic Places (NRHP) if the site(s) has yielded, or may be likely to yield, information important in prehistory or history in one of three historic contexts or levels of significance: local, state, or national (see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*). For purposes of analyzing impacts to archeological resources, thresholds of change for the intensity of an impact are based upon the potential of the site(s) to yield information important in prehistory or history, as well as the probable historic context of the affected site(s):

**Negligible:** Impact is at the lowest levels of detection – barely measurable with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Minor:** Adverse Impact – Disturbance of a site(s) results in little, if any, loss of significance or integrity and the NRHP eligibility of the site(s) is unaffected. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact – Maintenance and preservation of a site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Moderate:** Adverse Impact – Disturbance of a site(s) does not diminish the significance or integrity of the site(s) to the extent that its NRHP eligibility is jeopardized. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact – Stabilization of a site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Major:** Adverse Impact – Disturbance of a site(s) diminishes the significance and integrity of the site(s) to the extent that it is no longer eligible for listing on the NRHP. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial Impact – Active intervention to preserve a site(s). For purposes of Section 106, the determination of effect would be *no adverse effect*.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, there would be no development or other construction that would result in the disturbance or destruction of archeological resources. Overall, the **No Build Alternative** would have no impact on archeological resources.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on archeological resources within the Park include long-term, negligible to moderate, adverse impacts from the Locust Point developments and the MPA projects. Both of these projects would have the potential to impact archeological resources, as ground was unearthed for new development. However, it is impossible to predict how future projects may unfold or impact archeological resources. As a result, the overall impact to archeological resources under these actions would be short- to long-term, negligible to moderate, and beneficial or short-to long-term, negligible to moderate, and adverse. The **No Build Alternative** would not contribute to these cumulative impacts.

### *Conclusion*

Overall, the **No Build Alternative** would have **no impact** on archeological resources, and it would not contribute to short- to long-term, negligible to moderate, beneficial or short- to long-term, negligible to minor, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to archeological resources.

## IMPACTS OF ALTERNATIVE B

Under **Alternative B**, there would be development in two areas of the park with the potential to affect archeological resources. However, implementation of archeological investigation as the design effort for the alternative begins, together with close attention to the details of design, would limit the intensity of the impacts on significant resources. In the first area, most if not all of the disturbances associated with the additions to the existing Visitor Center would be confined to previously disturbed ground, or to ground previously occupied by features of lesser archeological importance (a ca. 1880-1925 roadway and adjacent utility corridors). Avoidance of impacts on the nearby footings of a ca. 1850 addition to the Storehouse and the ca. 1850 Methodist Society Soldiers' Chapel, by means of careful site placement of the separate restroom facility, would ensure that there were only minor impacts on resources in this area.

In the second area, the proposed site for development of the new facility, the focus of archeological investigation would be the nearby site of the 1840 hospital, and the characteristics and condition of any surviving remnants of frame additions (ca. 1862 and ca. 1880) to this hospital. It is anticipated that impacts to the foundation of the 1840 hospital, if they still exist, can be avoided. If remnants of the footings of the frame additions to the hospital survive, previous removal of the World War I hospital structures (specifically, water towers, a pump house, and associated buried water lines) are expected to have affected the integrity, and reduced the significance, of these

and other archeological resources in the area. As a result, there would be only minor impacts on resources at this particular point.

The overall impact of **Alternative B** is long-term, negligible to minor, and adverse.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on archeological resources within the Park include negligible to moderate impacts from the Locust Point developments and the MPA projects. Both of these projects would have the potential to impact archeological resources, as ground was unearthed for new development. However, it is difficult to predict how future projects may unfold or impact archeological resources. As a result, the overall impact to archeological resources under these actions would be short- to long-term, negligible to moderate, and beneficial or adverse. **Alternative B** would contribute imperceptible to noticeable increments to these short- to long-term, negligible to moderate, and beneficial or adverse cumulative impacts.

#### *Conclusion*

The overall impact to archeological resources under **Alternative B** would be **long-term, negligible to minor, and adverse** and it would contribute imperceptible to noticeable increments to short- to long-term, negligible to moderate, beneficial or short- to long-term, negligible to moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to archeological resources.

#### *Section 106 Summary*

Although impacts of minor intensity would generally require a Section 106 determination of 'no adverse effect,' the park should be prepared to enter into a Memorandum of Agreement (MOA) with the Maryland SHPO, if the SHPO so wishes, to ensure that the necessary investigations and the avoidance of impacts on significant resources are accomplished.

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative B would have **no adverse effect** on the archeological resources of Fort McHenry.

### **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, there would be disturbance in two general areas of the Park. The first includes most if not all of the disturbances associated with the removal of the existing Visitor Center and the development located at the southwest edge of the existing parking lot, as well as the new facility. This would be confined to previously disturbed ground, or to ground previously occupied by features of lesser archeological importance (a ca. 1880-1925 roadway and adjacent utility corridors). Avoidance of major impacts on the probable nearby footing of a ca. 1840 stable (converted to a barracks following the Civil

War), and on the possible remnants of a ca. 1830 bakehouse/blacksmith's shop (converted pre-Civil War into a stable, and during the Civil War into quarters) requires careful placement of the facility on the conceptual plan, and would undoubtedly remain an aspect of the design as the project progresses. A final resource in this area is the remnants of the original Boundary Wall which has been archeologically identified, and documentation of its location is clear. Portions of the wall exist northeast of the 1808 stable and storehouse site and southeast of one of the 1840s stable/barracks structures. Archeological investigation would focus on documenting more precisely the locations and conditions of these resources to ensure that associated utilities and landscaping elements of the project are designed so as to have only minor impacts.

In the second area – the site of the existing overflow parking lot and the area proposed for development of a paved parking area – archeological investigation would focus on the mitigation, by means of data recovery, of anticipated impacts on two late-nineteenth/early-twentieth century walkways that extended through the area. Remnants of the footings of a frame World War I hospital structures may also be present here, but the likelihood of previous disturbances suggests that archeological monitoring during construction would provide sufficient mitigation of any additional impacts.

The overall impact under **Alternative C** would be long-term, negligible to minor, and adverse.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on archeological resources within the Park include negligible to moderate impacts from the Locust Point developments and the MPA projects. Both of these projects would have the potential to impact archeological resources, as ground was unearthed for new development. However, it is impossible to predict how future projects may unfold or impact archeological resources. As a result, the overall impact to archeological resources under these actions would be short- to long-term, negligible to moderate, and beneficial or short- to long-term, negligible to moderate, and adverse. **Alternative C** would contribute imperceptible to noticeable increments to these short- to long-term, negligible to moderate, beneficial or short- to long-term, negligible to moderate, adverse cumulative impacts.

#### *Conclusion*

The overall impact to archeological resources under **Alternative C** would be **long-term, negligible to minor, and adverse** and **Alternative C** would contribute imperceptible to noticeable increments to short- to long-term, negligible to moderate, beneficial or short- to long-term, negligible to moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to archeological resources.

### *Section 106 Summary*

Although impacts of minor intensity would generally require a Section 106 determination of ‘no adverse effect, the park should be prepared to enter into MOA with the Maryland SHPO, if the SHPO so wishes, to ensure that the necessary investigations and mitigation of impacts on this resource were accomplished.

An MOA is already anticipated for this particular alternative of the project, and would include potential impacts to the remnants of the Boundary Wall. This would reduce the intensity of the impact to minor, and ensure that there would be no adverse effect to the resource. Mitigation efforts may include further archeological investigations to identify other resources in the area, and confirm that the remnants of the Boundary Wall extend beyond the area of impact. One potential mitigation strategy for impacts to the Boundary Wall and other resources would be to expose the impacted areas and use them as an interpretive/educational display at the new facility. This strategy and others would be pursued with the Maryland SHPO.

After applying the Advisory Council on Historic Preservation’s criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative C would have **no adverse effect** on the archeological resources of Fort McHenry.

### **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, development would be confined to the same areas described in Alternative C. The overall impact would be long-term, minor, and adverse.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on archeological resources within the Park include negligible to moderate impacts from the Locust Point developments and the MPA projects. Both of these projects would have the potential to impact archeological resources, as ground was unearthed for new development. However, it is impossible to predict how future projects may unfold or impact archeological resources. As a result, the overall impact to archeological resources under these actions would be short- to long-term, negligible to moderate, and beneficial or adverse. **Alternative D** would contribute noticeable increments to these short- to long-term, negligible to moderate, beneficial or short- to long-term, negligible to moderate, adverse cumulative impacts.

#### *Conclusion*

The overall impact to archeological resources under **Alternative D** would be **long-term, minor, and adverse** and it would contribute noticeable increments to short- to long-term, negligible to moderate, beneficial or short- to long-term, negligible to moderate, adverse cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park’s establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park’s general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to archeological resources.

### *Section 106 Summary*

Although impacts of minor intensity would generally require a Section 106 determination of ‘no adverse effect, the park should be prepared to enter into MOA with the Maryland SHPO, if the SHPO so wishes, to ensure that the necessary investigations and mitigation of impacts on this resource were accomplished.

An MOA is already expected for this project alternative, and would include potential impacts to the remnants of the Boundary Wall. This would reduce the intensity of the impact to minor, and ensure that there would be no adverse effect to the resource. Mitigation efforts may include further archeological investigations to identify other resources in the area, and to confirm that the remnants of the Boundary Wall extend beyond the area of impact. One potential mitigation strategy for impacts to the Boundary Wall and other resources would be to expose the impacted areas and use them as an interpretive/educational display at the new facility. This strategy and others would be pursued with the SHPO.

After applying the Advisory Council on Historic Preservation’s criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the NPS Preferred Alternative would have **no adverse effect** on the archeological resources of Fort McHenry.

## **HISTORIC STRUCTURES**

### **METHODOLOGY**

In order for a structure or building to be listed on the NRHP, it must be associated with an important historic context, i.e. possess significance – the meaning or value ascribed to the structure or building, *and* have integrity of those features necessary to convey its significance, i.e. location, design, setting, workmanship, materials, feeling, and association (see National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*). For purposes of analyzing potential impacts to historic structures/buildings, the thresholds of change for the intensity of an impact are defined as follows:

**Negligible:** Impact(s) is at the lowest levels of detection – barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Minor:** Adverse Impact – Impact would not affect the character defining features of a NRHP eligible or listed structure or building. For purposes of Section 106, the determination of effect would be *no adverse effect*.  
Beneficial Impact – Stabilization/preservation of character defining features in accordance with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

- Moderate: Adverse Impact – Impact would alter a character defining feature(s) of the structure or building but would not diminish the integrity of the resource to the extent that its NRHP eligibility is jeopardized. For purposes of Section 106, the determination of effect would be *no adverse effect*.  
Beneficial Impact – Rehabilitation of a structure or building in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.
- Major: Adverse Impact – Impact would alter a character defining feature(s) of the structure or building, diminishing the integrity of the resource to the extent that it is no longer eligible for listing on the NRHP. For purposes of Section 106, the determination of effect would be *adverse effect*.  
Beneficial Impact – Restoration of a structure or building in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, the historic Star Fort would continue to be used for administrative and research uses. Floor loading would continue as the weight associated with these activities places pressures on the integrity, stability, and interpretive potential of the Fort. However, the Fort and related features within the 1814 reservation boundary would remain intact. Overall, the **No Build Alternative** would have a long-term, minor, adverse impact to historic structures.

### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on historic structures within the Park or in the surrounding area.

### *Conclusion*

The overall impact to historic structures under the **No Build Alternative** would be **long-term, minor, and adverse**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to historic structures.

## IMPACTS OF ALTERNATIVE B

Under **Alternative B**, the Fort and related features within the 1814 reservation boundary would remain intact. The current Visitor Center would be rehabilitated and expanded to provide more room for visitor services and support functions. This, along with the construction of the new proposed administrative building, would provide staff with more room for administrative duties and allow for a reduction in the use of the Star Fort for these functions. This would not only enable the Park to use the Fort for more interpretive functions, but remove floor loading that places added stress on the structure's integrity and stability. This is a critical improvement to assist the Park in maintaining its mission. Overall, **Alternative B** would have a long-term, minor, beneficial impact on historic structures.

*Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on historic structures within the Park or in the surrounding area.

*Conclusion*

The overall impact to historic structures under **Alternative B** would be **long-term, minor, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to historic structures.

*Section 106 Summary*

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative B would have a **no adverse effect** on the historic structures of Fort McHenry.

## **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, actions similar to those described in **Alternative B** would be taken. However, in this alternative additional space would be provided in the new Education/Administration facility. This facility would provide space to house both interpretive and some administrative functions. Additional space would also be provided in the new administrative building. As in **Alternative B**, development would be kept outside the Fort and the 1814 reservation boundary. As a result, use of the Star Fort for administrative and other non-intended uses would be greatly diminished thus reducing floor loading on the Fort. This is a critical improvement to assist the Park in maintaining its mission. The overall impact would be long-term, minor, and beneficial to historic structures.

*Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on historic structures within the Park or in the surrounding area.

*Conclusion*

The overall impact to historic structures under **Alternative C** would be **long-term, minor, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to historic structures.

#### *Section 106 Summary*

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative C would have a **no adverse effect** on the historic structures of Fort McHenry.

### **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, a new Education/Administration building would be constructed. This facility would provide adequate space to house both interpretive and all of the Park's administrative functions. As a result, use of the Star Fort for administrative and other non-intended uses would be removed, thus reducing floor-loading to the structure. This is a critical element in forwarding the Park's mission. As previously described, this alternative would avoid development within the historic 1814 reservation boundary or the Star Fort. **Alternative D** would have a long-term, minor, beneficial impact to historic structures.

#### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on historic structures within the Park or in the surrounding area.

#### *Conclusion*

The overall impact to historic structures under **Alternative D** would be **long-term, minor, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to historic structures.

#### *Section 106 Summary*

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the NPS Preferred Alternative would have **no adverse effect** on the historic structures of Fort McHenry.

### **CULTURAL LANDSCAPES**

#### **METHODOLOGY**

Cultural landscapes are the result of the long interaction between people and the land, the influence of human beliefs and actions over time upon the natural landscape. Shaped through time by historical land-use and management practices, as well as politics and property laws, levels of technology, and economic conditions, cultural landscapes provide a living record of an area's past, a visual chronicle of its history. The dynamic nature of modern human life, however, contributes to the continual reshaping of cultural landscapes; making them a good source of information about specific times and places, but at the same time rendering their long-term preservation a challenge.

In order for a cultural landscape to be listed on the NRHP, it must possess significance (the meaning or value ascribed to the landscape) *and* have integrity of those features necessary to convey its significance. The character defining features of a cultural landscape include spatial organization and land patterns; topography; vegetation; circulation patterns; water features; and structures/buildings, site furnishings, and objects (see *The Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes* 1996). For purposes of analyzing potential impacts to cultural landscapes, the thresholds of change for the intensity of an impact are defined as follows:

**Negligible:** Impact(s) is at the lowest levels of detection – barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Minor:** Adverse Impact – Impact would not affect the character defining patterns or features of a NRHP eligible or listed cultural landscape. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact – Preservation of character defining features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Moderate:** Adverse Impact – Impact would alter a character defining pattern(s) or feature(s) of the cultural landscape but would not diminish the integrity of the landscape to the extent that its NRHP eligibility is jeopardized. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Beneficial Impact – Rehabilitation of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Major:** Adverse Impact – Impact would alter a character defining pattern(s) or feature(s) of the cultural landscape, diminishing the integrity of the resource to the extent that it is no longer eligible for listing on the NRHP. For purposes of Section 106, the determination of effect would be *adverse effect*.

Beneficial Impact – Restoration of a landscape or its patterns and features in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. For purposes of Section 106, the determination of effect would be *no adverse effect*.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, the current landscape would remain intact. The Visitor Center would remain in the center of the landscape, obscuring its historical significance, and the historic building footprints adjacent to the Visitor Center would continue to lack context. However, the Fort and its historic 1814 reservation boundary would remain untouched, as would views from the Fort to the surrounding

water. Overall, the **No Build Alternative** would have a long-term, negligible, adverse impact to cultural landscapes.

#### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on cultural landscapes within the Park or in the surrounding area.

#### *Conclusion*

The overall impact to cultural landscapes under The **No Build Alternative** would be **long-term, negligible, and adverse**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to cultural landscapes.

### **IMPACTS OF ALTERNATIVE B**

Under **Alternative B**, the Fort and its historic 1814 reservation boundary would remain intact. Disturbance associated with development would be minimal, as the current building would be expanded on site. Despite this, the development would expand towards the Fort, thus impacting historic spatial and visual relationships (Figure 8a). Based on this, the overall impact of **Alternative B** would be long-term, minor, and adverse.

#### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on cultural landscapes within the Park or in the surrounding area.

#### *Conclusion*

The overall impact to cultural landscapes under **Alternative B** would be **long-term, minor, and adverse**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to cultural landscapes.

#### *Section 106 Summary*

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative B would have a **no adverse effect** on the cultural landscapes of Fort McHenry.

### **IMPACTS OF ALTERNATIVE C**

As in **Alternative B**, development would be kept out of the Fort and its historic 1814 reservation boundary. The design of the new building would be small enough to externalize the non-visitor building

program in less sensitive landscape areas. The proposed building forms would also be sized and articulated to be compatible with the character of the cultural landscape in the design context of the site's missing historic buildings (Figure 9b). Under **Alternative C**, historic pedestrian circulation patterns would be re-established. Most importantly, the current Visitor Center would be removed from the landscape. This is a critical element in improving the overall landscape at Fort McHenry. The overall impact under this alternative would be long-term, minor to moderate, and beneficial.

#### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on cultural landscapes within the Park or in the surrounding area.

#### *Conclusion*

The overall impact to cultural landscapes under **Alternative C** would be **long-term, minor to moderate, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to cultural landscapes.

#### *Section 106 Summary*

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of Alternative C would have a **no adverse effect** on the cultural landscapes of Fort McHenry.

### **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under this alternative, the Fort and its 1814 boundary would remain intact. Understanding that the proposed scale and design of the new building will be compatible and in character with the historic features of the cultural landscape, the building proposed under this alternative, is slightly larger than in **Alternative C** (Figure 10b). Another element to this alternative, similar to **Alternative C**, is the removal of the current Visitor Center from the landscape. This is a critical step in improving the overall landscape at Fort McHenry. The overall impact of **Alternative D** would be long-term, minor, and beneficial.

#### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on cultural landscapes within the Park or in the surrounding area.

#### *Conclusion*

The overall impact to cultural landscapes under **Alternative D** would be **long-term, minor, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a

goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to cultural landscapes.

#### *Section 106 Summary*

After applying the Advisory Council on Historic Preservation's criteria of adverse effects (36 CFR Part 800.5, *Assessment of Adverse Effects*), the National Park Service concludes that implementation of the NPS Preferred Alternative would have a **no adverse effect** on the cultural landscapes of Fort McHenry.

## MUSEUM COLLECTIONS

### METHODOLOGY

Museum collections (historic artifacts, natural specimens, and archival and manuscript material) may be threatened by fire, theft, vandalism, natural disasters, and careless acts. The preservation of museum collections is an ongoing process of preventative conservation, supplemented by conservation treatment when necessary. The primary goal is preservation of artifacts in as stable a condition as possible to prevent damage and minimize deterioration. For purposes of analyzing potential impacts, the thresholds of change for the intensity of an impact are defined as follows:

**Negligible:** impact is at the lowest level of detection – barely perceptible, with no perceptible consequences, whether adverse or beneficial to museum collections. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Minor:** Adverse impact – would affect the integrity of few items in the museum collection but would not degrade the usefulness of the collection for future research and interpretation. For purposes of Section 106, the determination of effect would be *no adverse effect*.  
Beneficial impact – would stabilize the current condition of the collection or its constituent components to minimize degradation. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Moderate:** Adverse impact – would affect the integrity of many items in the museum collection and diminish the usefulness of the collection for future research and interpretation. For purposes of Section 106, the determination of effect would be an *adverse effect*.  
Beneficial impact – would secure the condition of the collection as a whole or its constituent parts from the threat of degradation. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Major:** Adverse impact – would affect the integrity of most items in the museum collection and destroy the usefulness of the collection for future research and interpretation. For purposes of Section 106, the determination of effect would be an *adverse effect*.  
Beneficial impact – would secure the condition of the collection as a whole or its constituent components from the threat of further degradation. For purposes of Section 106, the determination of effect would be *no adverse effect*.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, museum collections would continue to be stored in the Civil War Powder Magazine. While not an ideal storage space, the magazine has been used successfully for some time. Other collections would be stored in the Star Fort, as they are not as sensitive as those stored in the magazine and are used frequently by Park staff and researchers. The **No Build Alternative** would have a long-term, negligible, beneficial impact on museum collections.

### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on museum collections within the Park or in the surrounding area.

### *Conclusion*

The overall impact to museum collections under The **No Build Alternative** would be **long-term, negligible, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to museum collections.

## IMPACTS OF ALTERNATIVE B

Under **Alternative B**, the Civil War Powder Magazine would continue to house the majority of the Park's collection. The Historical and Archeological Reports Program (HARP) collection of over 70,000 documents that has been stored in the Park's library would be moved to the new facility to allow access for Park staff and researchers. The new facility would provide professional protection of these documents through climate and other environmental controls to ensure the protection of resources critical to the Park's mission. **Alternative B** would have a long-term, moderate, beneficial impact on museum collections.

### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on museum collections within the Park or in the surrounding area.

### *Conclusion*

The overall impact to museum collections under **Alternative B** would be **long-term, moderate, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to museum collections.

## IMPACTS OF ALTERNATIVE C

Under **Alternative C**, those actions taken under **Alternative B** would still be taken. However, the library may now provide more space to store the HARP Collection. **Alternative C** would have a long-term, moderate, beneficial impact on museum collections.

### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on museum collections within the Park or in the surrounding area.

### *Conclusion*

The overall impact to museum collections under **Alternative C** would be **long-term, moderate, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to museum collections.

## IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE

Under **Alternative D**, those actions taken in the previous action alternatives would be taken. Based on the larger size of the facility proposed in this alternative, there would be more space for the HARP collection than in the other alternatives. **Alternative D** would have a long-term, moderate, beneficial impact on museum collections.

### *Cumulative Impacts*

There are no present and reasonably foreseeable future actions that would have an impact on museum collections within the Park or in the surrounding area.

### *Conclusion*

The overall impact to museum collections under **Alternative D** would be **long-term, moderate, and beneficial**. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to museum collections.

## VISUAL RESOURCES

### METHODOLOGY

Negligible: The visual quality of the landscape would not be affected or the impacts would be at or below the level of detection, would be short-term, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the visitor experience.

- Minor: Impacts to the visual quality of the landscape would be detectable, although the impacts would be short-term, localized, and would be small and of little consequence to the visitor experience. Mitigation measures, if needed to offset adverse impacts, would be simple and successful.
- Moderate: Impacts to the visual quality of the landscape would be readily detectable, long-term, and localized, with consequences at the regional level. Mitigation measures, if needed to offset adverse impacts, would be extensive and likely successful.
- Major: Impacts to the visual quality of the landscape would be obvious, long-term, and would have substantial consequences to the visitor experience in the region. Extensive mitigation measures would be needed to offset any adverse impacts and their success would not be guaranteed.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, visual resources would remain unchanged. The theater in the Visitor Center would still open to a view of the flag flying over the Fort. Much of the Park would still possess historical and/or aesthetic views of the harbor. Despite these views, other areas of the Park would not present the visual resources the Park desires. The maintenance area would still be visible on the right side of the entrance to the Park taking away from the Park's historic setting as well as its aesthetic aspects. Additionally, the location of the current Visitor Center reduces initial views of the Fort and the flag as visitors enter the Park and would be the first thing visitors see upon entering the Park. All of these conditions have existed for many years. By providing a direct line of site from the theater to the flag, and views of the harbor, the **No Build Alternative** would have a long-term, minor, beneficial impact. The alternative would also have long-term, minor, adverse impacts as the Visitor Center obscured the initial sites of the Park and the maintenance area intruded into the overall viewshed.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visual resources within the Park include impacts from the wetland mitigation area and MPA ports. The wetland mitigation area would provide the area with some additional natural viewsheds to compensate for the otherwise developed region. This impact would be minor and beneficial. The MPA developments would not be readily visible from the Fort McHenry. The Park has and would continue to work with its neighbors to preserve the nature of Fort McHenry. As long as this cooperation continued, the MPA projects would be negligible. The overall impact from these projects would be long-term, minor, and beneficial. The **No Build Alternative** would contribute noticeable increments to long-term, minor, beneficial cumulative impacts.

### *Conclusion*

The overall impact to visual resources under the **No Build Alternative** would be **long-term, minor, adverse** and **long-term, minor, and beneficial** and the **No Build Alternative** would contribute

noticeable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visual resources.

### **IMPACTS OF ALTERNATIVE B**

Under **Alternative B**, the current Visitor Center would be expanded. This would decrease the little historical view shed that visitors experience upon entering the Park. The maintenance area, however, would be improved. A new facility would be built to the south of the entranceway. This building would block views of the service yard and also be screened by trees and other vegetation. Overall, **Alternative B** would have a long-term, minor, adverse impact on visual resources.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visual resources within the Park include impacts from the wetland mitigation area and MPA ports. The wetland mitigation area would provide the area with some additional natural viewsheds to compensate for the otherwise developed region. This impact would be minor and beneficial. The MPA developments would not be readily visible from Fort McHenry. The Park has and would continue to work with its neighbors to preserve the nature of Fort McHenry. As long as this cooperation continued, the impact of the MPA projects would be negligible. The overall impact from these projects would be long-term, minor, and beneficial. **Alternative B** would contribute noticeable increments to long-term, minor, beneficial cumulative impacts.

#### *Conclusion*

The overall impact to visual resources under **Alternative B** would be **long-term, minor, and adverse** and it would contribute noticeable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visual resources.

### **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, the current Visitor Center would be demolished. This would focus the Park's viewsheds on the Fort, the flag, and the harbor, all of which provide more historical context to the site. The new Visitor Center would be constructed adjacent to the current parking lot, thus the impact on visual resources from this facility would be relatively mild since it is away from the historical viewsheds and bordered by other structures on neighboring properties (Figure 9b). In addition to this improvement, the new administration building would screen the maintenance yard, as described under **Alternative B**. Overall; **Alternative C** would have a long-term, moderate, beneficial impact on visual resources.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visual resources within the Park include impacts from the wetland mitigation area and MPA ports. The wetland mitigation area would provide the area with some additional natural viewsheds to compensate for the otherwise developed region. This impact would be minor and beneficial. The MPA developments would not be readily visible from Fort McHenry. The Park has and would continue to work with its neighbors to preserve the nature of Fort McHenry. As long as this cooperation continued, the MPA projects would have negligible impacts on Park viewsheds. The overall impact from these projects would be long-term, minor, and beneficial. **Alternative C** would contribute appreciable increments to long-term, minor, beneficial cumulative impacts.

### *Conclusion*

The overall impact to visual resources under **Alternative C** would be **long-term, moderate, and beneficial** and **Alternative C** would contribute appreciable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visual resources.

## **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D** the current Visitor Center would be demolished and a new facility would be constructed adjacent to the parking lot. This would provide the same benefits described in **Alternative C**, although the building proposed under this alternative would be larger and may impose more on the viewsheds. Despite this, **Alternative D** would be constructed along the property line against a backdrop of other large buildings, thus reducing the overall impact to the viewshed (Figure 10b). While the maintenance building to the north of the entrance would still be demolished (common to all alternatives), the maintenance area to the south of the entranceway would remain unchanged, as in the **No Build Alternative**. This would leave the maintenance yard exposed to select views of the Park. **Alternative D** would still remove the current Visitor Center from the center of the viewshed, the most important step in improving the overall viewshed at Fort McHenry. Therefore, **Alternative D** would have a long-term, minor, beneficial impact to visual resources.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visual resources within the Park include impacts from the wetland mitigation area and MPA ports. The wetland mitigation area would provide the area with some additional natural viewsheds to compensate for the otherwise developed region. This impact would be minor and beneficial. The MPA developments would not be readily visible from Fort McHenry. The Park has and would continue to work with its neighbors to preserve the nature of Fort McHenry. As long as this cooperation continued, the MPA projects would have negligible impact on viewsheds. The overall impact from these projects would be long-term, minor,

and beneficial. **Alternative D** would contribute noticeable increments to long-term, minor, beneficial cumulative impacts.

#### *Conclusion*

The overall impact to visual resources under **Alternative D** would be **long-term, minor, and beneficial** and **Alternative D** would contribute noticeable increments to long-term, minor, beneficial, cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visual resources.

## **VISITOR USE AND EXPERIENCE**

### **METHODOLOGY**

*NPS Management Policies 2001* state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks, and that the National Park Service is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks.

Part of the purpose of Fort McHenry is to offer opportunities for interpretation, education, inspiration, and enjoyment. Consequently, one of the Park's management goals is to ensure that visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities.

Observation of visitation patterns combined with the assessment of what is available to visitors under current management was used to estimate the impacts of the actions in the various alternatives in this document. The impact on the ability of the visitor to experience a full range of park resources was analyzed by examining resources and objectives presented in the Fort McHenry significance statement. The potential for change in visitor use and experience proposed by the alternatives was evaluated by identifying projected increases or decreases in education, circulation, and other visitor uses, and determining whether or how these projected changes would affect the desired visitor experience, to what degree, and for how long.

**Negligible:** Visitors would not be affected or changes in visitor use and /or experience would be at or below the level of detection. Any impacts would be short-term. The visitor would not likely be aware of the impacts associated with the alternative.

**Minor:** Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the impacts associated with the alternative, but the impacts would be slight.

- Moderate: Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the impacts associated with the alternative, and would likely be able to express an opinion about the changes.
- Major: Changes in visitor use and/or experience would be readily apparent, severely adverse or exceptionally beneficial, and would have important long-term consequences. The visitor would be aware of the impacts associated with the alternative, and would likely express a strong opinion about the changes.

### **IMPACTS OF THE NO BUILD ALTERNATIVE**

Under the **No Build Alternative**, no changes would be made to the current visitor experience. Transportation options for reaching the Park would be limited, as would available parking. The Visitor Center and its theater would not contain adequate room for visitors. The overall lack of space in the Visitor Center would not allow for many interpretive features, nor would it allow for visitors to wait for the next film. As a result, many visitors would be forced to wait outside for the next film, tour the Park without receiving the background information the film provides, or simply leave the Park without ever having toured the grounds. Bicycle and pedestrian circulation improvements that are already underway would continue under this alternative. The **No Build Alternative** would, however, maintain the view of the flag from the theater, an important part of the current visitor experience. Overall, the **No Build Alternative** would have a long-term, moderate, adverse impact on visitor use and experience.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visitor use and experience within the Park include short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore and long-term, minor, beneficial impacts from the water battery display. The 2014 Anniversary of the Battle of Baltimore is expected to bring a great deal of focus to Fort McHenry. This would allow for increased educational opportunities for the Park, its partners, and other groups that could become involved in the celebration. The water battery display would provide a permanent educational tool to allow for improved understanding of the 1814 British naval bombardment and the maritime history of the Chesapeake Bay. The overall impact of these actions would be short- and long-term, minor, and beneficial. The **No Build Alternative** would contribute appreciable increments to these short- and long-term, minor, beneficial cumulative impacts.

#### *Conclusion*

The overall impact to visitor use and experience under The **No Build Alternative** would be **long-term, moderate, and adverse** and it would contribute appreciable increments to short- and long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visitor use and experience.

## IMPACTS OF ALTERNATIVE B

**Alternative B** would seek to improve visitor use and experience by rehabilitating and enhancing the current Visitor Center. This would result in immediate improvements to the Visitor Experience by providing more room for interpretation and the theater. Additional space would also be provided for people to congregate and wait for the film. Therefore, there would be a noticeable and immediate improvement in the Park's ability to interpret its resources and the visitor's ability to enjoy them. Although this alternative does not improve the visitor experience as much as the other build alternatives, it still only improves the situation noticeably. **Alternative B** would have a long-term, moderate, beneficial impact on visitor use and experience.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visitor use and experience within the Park include short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore and long-term, minor, beneficial impacts from the water battery display. The 2014 Anniversary of the Battle of Baltimore is expected to bring a great deal of focus to Fort McHenry. This would allow for increased educational opportunities for the Park, its partners, and other groups that could become involved in the celebration. The water battery display would provide a permanent educational tool to allow for improved understanding of the 1814 British naval bombardment and the maritime history of the Chesapeake Bay. The overall impact of these actions would be short- and long-term, minor, and beneficial. **Alternative B** would contribute appreciable increments to these short- and long-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to visitor use and experience under **Alternative B** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to short- to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visitor use and experience.

## IMPACTS OF ALTERNATIVE C

**Alternative C** would seek to improve visitor use and experience by demolishing the current Visitor Center and building a new one adjacent to the current parking lot. This new facility would provide substantial increases in space for interpretation, education, and visitor services, to a level much greater than the previous alternative. For example, the theater would be expanded to allow more seating. Space for interpretation would also be available, along with educational opportunities. Many of these opportunities are not currently possible, nor are they possible under Alternative B, based on the lack of space.

Additional parking along with the realignment of the current parking area would reduce congestion. This would further the visitor's overall enjoyment of the Park. Further improvements to the visitor experience

would come from the development of the historic road trace, which would improve the visitor's understanding of the landscape and resources surrounding the Fort. This alternative would go further than **Alternative B** in enhancing the visitor experience by removing the structure from the center of critical viewsheds and landscapes. Overall, **Alternative C** would have a long-term, moderate, beneficial impact on visitor use and experience.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visitor use and experience within the Park include short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore and long-term, minor, beneficial impacts from the water battery display. The 2014 Anniversary of the Battle of Baltimore is expected to bring a great deal of focus to Fort McHenry. This would allow for increased educational opportunities for the Park, its partners, and other groups that could become involved in the celebration. The water battery display would provide a permanent educational tool to allow for improved understanding of the 1814 British naval bombardment and the maritime history of the Chesapeake Bay. The overall impact of these actions would be short- and long-term, minor, and beneficial. **Alternative C** would contribute appreciable increments to these short- and long-term, minor beneficial impacts.

#### *Conclusion*

The overall impact to visitor use and experience under **Alternative C** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to short- and long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visitor use and experience.

### **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

**Alternative D** would seek to improve visitor use and experience by demolishing the current Visitor Center and building a new one adjacent to the parking lot. This new facility, described in the Alternatives section of this document, would create more room for the theater, interpretive displays, and other educational opportunities. The direct view to the flag would be impacted, as the theater would be moved further away. The impact to this view could be mitigated or an entirely new interpretive experience could be created. Therefore, the impact to the view of the flag would not negatively influence the visitor experience.

Realignment of the parking area, along with the construction of a parking terrace (either Option 1 or Option 2) and improved alternative transportation would reduce congestion and thus improve the overall visitor experience. The visitor experience could be further enhanced through the construction of the covered terrace (Option 2) which would maintain natural views around the Park. Further improvements to the visitor experience would come from the development of the historic road trace, which would improve the visitor's understanding of the landscape and structures surrounding the Fort. As in **Alternative C**, this

alternative would remove the facility from critical viewsheds and landscapes. The proposed facility in this alternative would be larger than in **Alternative C**, providing more room to support the visitor experience. **Alternative D** would have a long-term, moderate, beneficial impact on visitor use and experience.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on visitor use and experience within the Park include short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore and long-term, minor, beneficial impacts from the water battery display. The 2014 Anniversary of the Battle of Baltimore is expected to bring a great deal of focus to Fort McHenry. This would allow for increased educational opportunities for the Park, its partners, and other groups that could become involved in the celebration. The water battery display would provide a permanent educational tool to allow for improved understanding of the 184 British naval bombardment and the maritime history of the Chesapeake Bay. The overall impact of these actions would be short- and long-term, minor, and beneficial. **Alternative D** would contribute appreciable increments to these short- and long-term, minor beneficial impacts.

#### *Conclusion*

The overall impact to visitor use and experience under **Alternative D** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to short- and long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to visitor use and experience.

## **PARK OPERATIONS AND INFRASTRUCTURE**

### **METHODOLOGY**

Park operations, for the purpose of this analysis, refers to the quality and effectiveness of the infrastructure, and the ability to maintain the infrastructure, in order to adequately protect and preserve vital resources and provide for an effective visitor experience. This includes an analysis of the condition and usefulness of the facilities and developed features used to support the operations of the Park.

Staff members who were knowledgeable of these issues were included in the planning team that evaluated the impacts of each alternative. Impact analysis is based on the current description of park operations presented in the Affected Environment section of this document.

**Negligible:** Park operations would not be affected, or the impacts would be at low levels of detection and would not have an appreciable impact on park operations.

- Minor: The impact would be detectable and likely short-term, but would be of a magnitude that would not have an appreciable impact on park operations. If mitigation was needed to offset adverse impacts, it would be simple and likely successful.
- Moderate: The impacts would be readily apparent, likely long-term, and would result in a substantial change in park operations in a manner noticeable to staff and to public. Mitigation measures would be necessary to offset adverse impacts and would likely be successful.
- Major: The impacts would be readily apparent, long-term, would result in a substantial change in park operation in a manner noticeable to staff and the public and be markedly different from existing operations. Mitigation measures to offset adverse impacts would be needed, would be extensive, and their success could not be guaranteed.

## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, park operations and infrastructure would continue under current practices. Park operations would be split between the Visitor Center, the Star Fort, and the Mission 66 duplex. The Fort was clearly not designed to handle such functions, and Park staff has been forced to make do with the space they have. Fee collection would continue to take place in the Visitor Center and staff would need to continue to monitor the Fort entrance to ensure that those entering had paid.

Also, no changes to Park utilities would occur. The metal maintenance facility located to the south of the entranceway would not be hooked to sewer or water lines, and employees would continue to rely on portable toilets located outside the facility. The **No Build Alternative** would have a long-term, moderate, adverse impact to park operations and infrastructure.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on park operations and infrastructure within the Park include the 2014 Anniversary of the Battle of Baltimore and the MPA projects. The anniversary would contribute short-term, minor, beneficial and short-term, minor, adverse impacts, as the Park would have the opportunity to spread its educational message to a larger audience. In doing so, Park staff would be forced to address larger crowds than usual, but this would not take away from the Park mission and would not last for a significant period of time. The MPA projects could allow for future partnerships with the Park to develop a shared parking area or other mutually beneficial projects. Currently, the MPA has no plans that would allow for such a venture, however, the Park would continue to pursue off-site parking options with the MPA and other neighbors. The impact of the MPA projects could range from negligible to minor, long-term, and beneficial. The overall impact of these projects would have a short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, and beneficial impacts. The **No Build Alternative** would contribute appreciable increments to these short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, and beneficial impacts.

### *Conclusion*

The overall impact to park operations and infrastructure under the **No Build Alternative** would be **long-term, moderate, and adverse** and it would contribute appreciable increments to short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to Park operations and infrastructure.

### **IMPACTS OF ALTERNATIVE B**

Under **Alternative B**, all Park offices would be moved out of the Fort and into the enhanced Visitor Center and new administration building by the front wall. This would enhance staff efficiency by removing administrative activities from the commotion of the visitors at the Fort. It would also provide space that was designed for administrative functions. Despite these improvements, the administrative offices would still be separate from those offices in the enhanced Visitor Center and thus reduce some efficiency.

Visitors would be directed to the enhanced Visitor Center, making fee collection more reliable. Exhibit and theater space would also be increased, improving staff's ability to provide proper interpretation and education opportunities. Educational opportunities would be furthered by providing space within the expanded structure for the Patriots of Fort McHenry, and other partners. These partners would be able to assist and complement the staff's educational programs.

Overall customer service would be improved through these actions, and through expanded space for the Park gift shop. The maintenance operation would lose some of its storage and operating space. This space could be recovered in the future, but for now the operation would be consolidated in the maintenance yard to the south of the main entrance. The current utilities in the Park would be able to support these developments. Overall, **Alternative B** would have a long-term, minor, beneficial impact to park operations and infrastructure.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on park operations and infrastructure within the Park include the 2014 Anniversary of the Battle of Baltimore and the MPA projects. The anniversary would contribute short-term, minor, beneficial and short-term, minor, adverse impacts, as the Park would have the opportunity to spread its educational message to a larger audience. In doing so, Park staff would be forced to address larger crowds than usual, but this would not take away from the Park mission and would not last for a significant period of time. The MPA projects could allow for future partnerships with the Park to develop a shared parking area or other mutually beneficial projects. Currently, the MPA has no plans that would allow for such a venture, however, the Park would continue to pursue off-site parking options with the MPA and other neighbors. The impact of the MPA projects could range from negligible to minor, long-term, and beneficial. The overall impact of these

projects would have a short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial impacts. **Alternative B** would contribute noticeable increments to these short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial impacts.

#### *Conclusion*

The overall impact to park operations and infrastructure under **Alternative B** would be **long-term, minor, and beneficial** and it would contribute noticeable increments to short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to Park operations and infrastructure.

### **IMPACTS OF ALTERNATIVE C**

As in **Alternative B**, **Alternative C** would move all Park offices out of the Fort and into the new Education/Administration facility by the front wall. This would provide the administrative staff with a better designed work space. However, the distance between the new Education/Administration facility and the administration building by the front wall would continue to create inefficiencies.

The Education/Administration facility proposed under **Alternative C** would provide more space than in **Alternative B**. The increased space within the new Education/Administration facility would allow staff to improve their education and interpretive operations. More space would not only provide room for increased exhibits and programs, but allow the staff and Park partners to reach more visitors. As in **Alternative B**, this alternative would eliminate some of the maintenance operation's office and operating space. However, the larger building would allow maintenance to recoup some of its office space immediately, while future efforts could create a new maintenance facility. The surrounding utilities would be able to support these improvements. The overall impact would be long-term, minor, and beneficial.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on park operations and infrastructure within the Park include the 2014 Anniversary of the Battle of Baltimore and the MPA projects. The anniversary would contribute short-term, minor, beneficial and short-term, minor, adverse impacts, as the Park would have the opportunity to spread its educational message to a larger audience. In doing so, Park staff would be forced to address larger crowds than usual, but this would not take away from the Park mission and would not last for a significant period of time. The MPA projects could allow for future partnerships with the Park to develop a shared parking area or other mutually beneficial projects. Currently, the MPA has no plans that would allow for such a venture, however, the Park would continue to pursue off-site parking options with the MPA and other neighbors. The impact of the MPA projects could range from negligible to minor, long-term, and beneficial. The overall impact of these projects would have a short- to long-term, negligible to minor, adverse and short- to long-term, negligible

to minor, beneficial impacts. **Alternative C** would contribute noticeable increments to these short- to long-term, negligible to minor, adverse and short- to long-term negligible to minor, beneficial impacts.

#### *Conclusion*

The overall impact to park operations and infrastructure under **Alternative C** would be **long-term, minor, and beneficial** and it would contribute noticeable increments to short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to park operations and infrastructure.

### **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, all Park offices would be moved out of the Fort and into the new education/administration facility. The facility would be large enough to consolidate all administrative offices thus greatly enhancing staff efficiency. While there could be occasional disruptions from visitors, the administrative areas would be set away from most of the public areas. Any slight disturbance from visitors would be a small disruption in comparison to other alternatives that require staff to walk across the Park to access administrative offices.

The size of this facility would allow for the most interpretive and educational space compared to the other build alternatives. This would include space for Fort McHenry's partners to operate in an effort to support the Park's goals. The larger space would not only increase educational opportunities but decrease visitor congestion. The larger space would also allow for more of the maintenance operation's office space and reduce the need for a new maintenance building in the near future. All of these improvements could be supported by surrounding utilities. The overall impact would be long-term, moderate, and beneficial.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on park operations and infrastructure within the Park include the 2014 Anniversary of the Battle of Baltimore and the MPA projects. The anniversary would contribute short-term, minor, beneficial and short-term, minor, adverse impacts, as the Park would have the opportunity to spread its educational message to a larger audience. In doing so, Park staff would be forced to address larger crowds than usual, but this would not take away from the Park mission and would not last for a significant period of time. The MPA projects could allow for future partnerships with the Park to develop a shared parking area or other mutually beneficial projects. Currently, the MPA has no plans that would allow for such a venture, however, the Park would continue to pursue off-site parking options with the MPA and other neighbors. The impact of the MPA projects could range from negligible to minor, long-term, and beneficial. The overall impact of these projects would have a short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial impacts. **Alternative D** would contribute appreciable increments to these short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial impacts.

### *Conclusion*

The overall impact to park operations and infrastructure under **Alternative D** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to short- to long-term, negligible to minor, adverse and short- to long-term, negligible to minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to Park operations and infrastructure.

## **TRANSPORTATION**

### **METHODOLOGY**

Environmental consequences of transportation enhancements are considered beneficial and similar for all active alternatives. Environmental consequences are considered for both park roads and external roads serving the park. Since park roads serve no dual function as part of the local transportation network, impacts thereon are not considered. Impacts on publicly owned roads providing access to the park are categorized as follows:

- Negligible:** Traffic would not be affected, or the impacts would be at the lower levels of detection and would not have an appreciable impact on traffic flow. There would be no changes in the level of service.
- Minor:** The impact would be detectable, but would be of a magnitude that would not have an appreciable impact on traffic flow. There would be no noticeable changes in the traffic congestion or level of service. If mitigation was needed to offset adverse impacts, it would be simple and likely successful.
- Moderate:** The impacts would be readily apparent, and would result in a substantial change in traffic flow patterns, congestion, and /or level of service, in a manner noticeable to the public. Mitigation would be necessary to offset adverse impacts and would likely be successful.
- Major:** The impacts would be readily apparent and would result in a substantial change in traffic flow in a manner noticeable to the public and be markedly different from the present traffic flow patterns and levels of service. Mitigation measures to offset adverse impacts would be needed, would be extensive, and their success would not be guaranteed.

### **IMPACTS OF THE NO BUILD ALTERNATIVE**

Under the **No Build Alternative**, there are several concurrent transportation projects that relate to the Park. One is the Key Highway Extension whose primary objective is to reroute traffic away from some

local streets that are near the Park. Another project is safety-related improvements at the Park entrance. This project would install STOP signs, new crosswalks, and a raised intersection speed table.

Fort McHenry's daily car count data indicate that the Park generates more than 500,000 (two-way) automobile trips during the peak months of June and July. The daily average during those months is approximately 1,750 automobile trips. Calculations using the Park's data of film viewings by time of day indicate that peak hour traffic likely exceeds 200 automobile trips. If current visitation projections are achieved, traffic is expected to increase by 800 daily trips and almost 100 peak hour trips. These vehicle trips to the Park would be on two primary arterial roadways, Key Highway and Fort Avenue. Because of the isolated location of the Park, the roadway segments nearby do not operate near capacity and no operational traffic issues are anticipated. The overall impact would be long-term, minor, and adverse.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. Based on the small size of the park, the **No Build Alternative** would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts in the region.

#### *Conclusion*

The overall impact to transportation under the **No Build Alternative** would be **long-term, minor, and adverse** and the **No Build Alternative** would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts in the region. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to transportation.

## **IMPACTS OF ALTERNATIVE B**

Under **Alternative B**, those projects outside of the Park, like the Key Highway extension, would continue. Improvements to the front gate would include the installation of STOP signs, new crosswalks, and a raised intersection speed table. These improvements would better manage the 1,750 existing daily trips (two-way) and over 200 during the peak hour on the busiest days.

In addition, it is assumed that Alternative Transportation System (ATS) partnership initiatives (Figure 12) would be implemented and are expected to reduce the potential annual growth rate of Park automobile traffic from 4% to 2%. The Fort's daily car count data indicate that the Park generates more than 500,000 (two-way) automobile trips during the peak months of June and July. The daily average during those months is approximately 1,750 automobile trips. Calculations using the Park's data of film viewings by time of day indicate that peak hour traffic likely exceeds 200 automobile trips. Taking into account the ATS partnership initiatives, daily trips are expected to increase by 400 daily trips and almost 50 peak hour trips by 2010. These vehicle trips to the Park would be on two primary arterial roadways, Key Highway

and Fort Avenue. Because of the isolated location of the Park, the roadway segments nearby do not operate near capacity and no operational traffic issues are anticipated.

**Alternative B** would also expand on-site bus parking. Currently on peak days there is insufficient bus parking on the Park grounds and overflow buses must Park on nearby municipal streets. **Alternative B** would have a long-term, minor, and beneficial impact on transportation.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project would reroute traffic away from some local streets that are near the Park. Based on the small size of the park, **Alternative B** would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts in the region.

#### *Conclusion*

The overall impact to transportation under **Alternative B** would be **long-term, minor, and beneficial** and would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to transportation.

### **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, improvements to the front gate would install STOP signs, new crosswalks, and a raised intersection speed table. These improvements would better manage the 1,750 existing daily trips (two-way) and over 200 during the peak hour on the busiest days. In addition, it is assumed that ATS partnership initiatives would be implemented and are expected to reduce the potential annual growth rate of Park automobile traffic from 4% to 2% (Figure 12). The Fort's daily car count data indicate that the Park generates more than 500,000 (two-way) automobile trips during the peak months of June and July. The daily average during those months is approximately 1,750 automobile trips. Calculations using the Park's data of film viewings by time of day indicate that peak hour traffic likely exceeds 200 automobile trips. Taking into account the ATS partnership initiatives, daily trips are expected to increase by 400 daily trips and almost 50 peak hour trips by 2010. These vehicle trips to the Park would be on two primary arterial roadways, Key Highway and Fort Avenue. Because of the isolated location of the Park, the roadway segments nearby do not operate near capacity and no operational traffic issues are anticipated.

**Alternative C** would also expand on-site bus parking. Currently on peak days there is insufficient bus parking on the Park grounds and overflow buses must Park on nearby municipal streets. **Alternative C** would have a long-term, minor, beneficial impact on transportation.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project would reroute traffic away from some local streets that are near the Park. Based on the small size of the park, **Alternative C** would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts in the region.

### *Conclusion*

The overall impact to transportation under **Alternative C** would be **long-term, minor, and beneficial** and would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to transportation.

## **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, improvements to the front gate would install STOP signs, new crosswalks, and a raised intersection speed table. These improvements would better manage the 1,750 existing daily trips (two-way) and over 200 during the peak hour on the busiest days.

In addition, it is assumed that ATS partnership initiatives would be implemented and are expected to reduce the potential annual growth rate of Park automobile traffic from 4% to 2% (Figure 12). The Fort's daily car count data indicate that the Park generates more than 500,000 (two-way) automobile trips during the peak months of June and July. The daily average during those months is approximately 1,750 automobile trips. Calculations using the Park's data of film viewings by time of day indicate that peak hour traffic likely exceeds 200 automobile trips. Taking into account the ATS partnership initiatives, daily trips are expected to increase by 400 daily trips and almost 50 peak hour trips by 2010. These vehicle trips to the Park would be on two primary arterial roadways, Key Highway and Fort Avenue. Because of the isolated location of the Park, the roadway segments nearby do not operate near capacity and no operational traffic issues are anticipated.

**Alternative D** would also expand on-site bus parking. Currently on peak days there is insufficient bus parking on the Park grounds and overflow buses must park on nearby municipal streets. **Alternative D** would have a long-term, minor, beneficial impact on transportation.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project would reroute traffic away from

some local streets that are near the Park. Based on the small size of the park, **Alternative D** would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts in the region.

#### *Conclusion*

The overall impact to transportation under **Alternative D** would be **long-term, minor, and beneficial** and would contribute imperceptible increments to long-term, minor, beneficial cumulative impacts in the region. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to transportation.

## **CIRCULATION AND SITE ACCESS**

### **METHODOLOGY**

The purpose of Park roadways and parking is to enhance visitor experience while providing safe and efficient means of access to Park resources. The thresholds of change for the intensity of an impact are as follows:

- Negligible:** Circulation and site access would not be affected, or the impacts would be at the lowest levels of detection and would not have an appreciable impact on traffic flow. There would be no changes in the site accessibility.
- Minor:** The impact would be detectable, but would be of a magnitude that would not have an appreciable impact on traffic flow. There would be no noticeable changes in the circulation patterns or site accessibility. If mitigation was needed to offset adverse impacts, it would be simple and likely successful.
- Moderate:** The impacts would be readily apparent, and would result in a substantial change in circulation patterns, congestion, and/or site accessibility, in a manner noticeable to the public. Mitigation would be necessary to offset adverse impacts and would likely be successful.
- Major:** The impacts would be readily apparent and would result in a substantial change in circulation in a manner noticeable to the public and be markedly different from the present circulation patterns and site accessibility. Mitigation measures to offset adverse impacts would be needed, would be extensive, and their success would not be guaranteed.

FIGURE 12



## IMPACTS OF THE NO BUILD ALTERNATIVE

Under the **No Build Alternative**, there would be no physical modifications of the Park entrance road, the automobile parking area, or the bus parking area. The lack of bus parking, particularly during the peak bus months of May and October, would result in additional buses being diverted from the Park to the neighboring streets. The existing shortage of automobile parking would continue to result in overflow parking on grassed areas some weekends during the summer. Under the **No Build Alternative**, the use of overflow parking would increase to approximately 60 days each year, compared to the 20 times per year it is now used. It may not be possible to maintain the grass in the area now used for overflow parking with this increased use. Access to the boat dock would remain the same.

The **No Build Alternative** would have a long-term, minor to moderate, adverse impact on circulation and site access.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on circulation and site access within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project will also reroute traffic away from some local streets that are near the Park. The net effect will be easier access to the Park with less congestion. The **No Build Alternative** would contribute appreciable increments to long-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to circulation and site access under the **No Build Alternative** would be **long-term, minor to moderate, and adverse**. The **No Build Alternative** would contribute appreciable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to circulation and site access.

## IMPACTS OF ALTERNATIVE B

Under **Alternative B**, ATS partnership initiatives are assumed to be implemented. The ATS partnership initiatives are intended to increase non-automobile mode share for those visiting the Park. The goal is to limit the potential of a 4% annual growth in automobile traffic to a 2% annual growth rate. The impact on parking would be to reduce the potential peak parking demand from 350 spaces to 295 spaces.

To further alleviate parking problems, a 22-space parking lot, used for employee/volunteer parking, would be constructed at the current site of the maintenance facility. The expanded main parking lot, including the dual-use bus/automobile parking area, would increase capacity from 161 stalls to 179 stalls. The overflow grassed parking area would remain unchanged.

A number of other improvements would be made to improve circulation and site access at Fort McHenry. Bicycle lanes would be striped on the Park entrance road. This would provide a safe route for bikers to enter the Park without interfering with motor vehicles or pedestrians. The bike lane would lead to a designated bicycle parking area further reducing the interaction between bicycles and motor vehicles.

Space would also be designated for bus drop off and pick up to reduce interactions between bus riders and other motor vehicles. This would be accomplished by designing the curb near the Visitor Center to provide a dedicated area for bus loading. Bus access would be further provided in a section of the main lot that would become dual-use bus/automobile parking. During peak times of bus visitation, the area could be used by buses and during the summer and on weekends, when bus visitation is low, the area could be used for parking automobiles. The net impact is to increase bus parking capacity from 6 to 14, thus increasing the number of people that can safely reach the Park by bus. There would no longer be overflow bus parking in the neighborhoods near the Park.

The amount of paved parking area would increase by about 15,000 square feet. However, the increased paved area would minimize the number of times the grassed area is used for overflow automobile parking. Currently this occurs approximately 20 times each year, but by 2010 it is anticipated that under the **No Build Alternative**, overflow parking on grassed areas would occur 60 times each year. Under **Alternative B**, the projected days of overflow parking on grassed areas within the Park would decrease to 15 annually, similar to current conditions.

The overall impact under **Alternative B** would be long-term, moderate, and beneficial.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project will reroute traffic away from some local streets that are near the Park. **Alternative B** would contribute appreciable increments to long-term, minor, beneficial impacts.

#### *Conclusion*

The overall impact to circulation and site access under **Alternative B** would be **long-term, moderate, and beneficial** and would contribute appreciable increments to long-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to circulation and site access.

## IMPACTS OF ALTERNATIVE C

Under **Alternative C**, those improvements described in **Alternative B** would be made, however some variations would occur based on the different configuration of the parking lot. Bicycle lanes would still be striped on the Park entrance road, and a bus pull off/drop off area would be designed. The 22-space employee/volunteer parking lot would be constructed as well.

Under this Alternative, however, the main parking lot would be redesigned and made smaller. The automobile parking capacity of the main parking lot, including the dual-use bus/automobile parking area, would decrease 161 stalls to 131 stalls. To account for this change, grassy area now used for overflow parking would be paved as a 136-space parking terrace. As in **Alternative B**, improvements to the main parking lot would provide additional room for bus parking. The net impact is to increase bus parking capacity from 6 to 14. Further parking relief would come from the ATS partnerships, that are assumed to be implemented. The ATS partnership initiatives are intended to increase non-automobile mode share for those visiting the Park. The goal is to limit the potential of a 4% annual growth in automobile traffic to a 2% annual growth rate. The impact on parking would be to reduce the potential peak parking demand from 350 spaces to 295 spaces. The amount of paved parking area would increase by about 12,000 square feet, mostly due to the conversion of the grassed overflow parking area to a paved parking terrace. The paved parking would meet expected peak demand and precludes overflow parking outside the Park boundaries except during special events.

The overall impact under **Alternative C** would be long-term, moderate, and beneficial.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project will reroute traffic away from some local streets that are near the Park. **Alternative C** would contribute appreciable increments to long-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to circulation and site access under **Alternative C** would be **long-term, moderate, and beneficial** and would contribute appreciable increments to long-term, minor, beneficial cumulative impacts. The visitor experience would be enhanced and park-related bus traffic in nearby neighborhoods would be eliminated. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to circulation and site access.

## IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE

Under **Alternative D**, improvements similar to those described in the other action alternatives would be made. The automobile parking capacity of the main parking lot, including the dual-use bus/automobile

parking area, would decrease 161 stalls to 108 stalls. The ATS partnership initiatives are intended to increase non-automobile mode share for those visiting the Park. The goal is to limit the potential of a 4% annual growth in automobile traffic to a 2% annual growth rate. The impact on parking would be to reduce the potential peak parking demand from 350 spaces to 295 spaces. The amount of paved parking area would decrease by about 12,000 square feet. However, because of the construction of the 136 space parking terrace (Option 1 or 2), parking would meet expected peak demand all but a few days of the year. When needed, overflow parking could occur at the terrace (grassed or paved) above the new parking lot. The terrace would provide sufficient overflow parking capacity even if the ATS partnership initiatives were not completely successful. The net impact of the parking lot reconfiguration would increase bus parking capacity from 6 to 12.

The overall impact would be long-term, moderate, and beneficial.

#### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on transportation within the Park include the Key Highway extension. The extension would contribute long-term, minor, beneficial impacts by rerouting one of the arterial roadways near the site to provide better access to a mixed-use development. By improving access, the Key Highway Extension project will reroute traffic away from some local streets that are near the Park. **Alternative D** would contribute appreciable increments to long-term, minor, beneficial impacts.

#### *Conclusion*

The overall impact to circulation and site access under **Alternative D** would be **long-term, moderate, and beneficial** and would contribute appreciable increments to long-term, minor, beneficial cumulative impacts. The visitor experience would be enhanced and park-related bus traffic in nearby neighborhoods would be eliminated. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to circulation and site access.

## **LOCAL ECONOMY AND LAND USE**

### **METHODOLOGY**

Issues of local economy and land use were identified through the scoping process, and include impacts on adjacent landowners and nearby towns or agencies, economic contribution of Fort McHenry to local economies, traditional land uses external to the Park boundaries, and possible conflicts between the proposed action and local or state plans, policies, or controls.

- Negligible:** No impacts would occur or the impacts to economic conditions would be below or at the level of detection. The impact would be slight and no long-term impacts to economic conditions would occur.
- Minor:** The impacts to economic conditions would be detectable, although short-term. Any impacts would be small and mitigation, if needed, would be simple and successful.
- Moderate:** The impacts to economic conditions would be readily apparent and likely long-term. Any impacts would result in changes to economic conditions on a local scale. If mitigation is needed to offset potential adverse impacts, it could be extensive, but would likely be successful.
- Major:** The impacts to economic conditions would be readily apparent, long-term, and would cause substantial changes to economic conditions in the region. Mitigation measures to offset potential adverse impacts would be extensive, and their success could not be guaranteed.

## **IMPACTS OF THE NO BUILD ALTERNATIVE**

Under the **No Build Alternative**, the current vending and bookstore sales would continue. Due to lack of parking and poor circulation, buses would continue to park on streets within the Locust Point neighborhood detracting from the residential land use that is maintained in the area. Furthermore, this alternative would do nothing to improve the attractiveness of the Park to potential visitors, a measure that could contribute to the local economy. The **No Build Alternative** would have a long-term, moderate, adverse impact to local economy or land use.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on local economy and land use within the Park include long-term, negligible impacts from the Wallace Street Pier, the dredging of Baltimore Harbor, Locust Point developments, and the MPA projects; long-term, negligible, beneficial impacts from the Key Highway extension; and short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore. The Wallace Street Pier, dredging of Baltimore Harbor, and the MPA projects would allow for continued growth in the local and regional economy, but would not impact the Park much. The Key Highway extension would also provide for growth in the local and regional economy by facilitating transport of goods as well as commuters which could result in increased visitation for Fort McHenry. Finally, the anniversary would attract more people to the area and more attention to its resources. The overall impact from these projects would be short-term, minor, and beneficial. The **No Build Alternative** would contribute appreciable increments to these short-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to local economy and land use under The **No Build Alternative** would be **long-term, moderate, and adverse** and it would contribute appreciable increments to short-term, minor, beneficial

cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to local economy and land use.

## **IMPACTS OF ALTERNATIVE B**

The increased parking and circulation in this alternative would reduce and/or eliminate the number of buses that would park in the surrounding neighborhood. As a result, the residential character of the area would be preserved. Furthermore, the improvements proposed under this alternative could attract more visitors that would in turn inject more money into the local economy. The overall impact would be long-term, moderate, and beneficial.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on local economy and land use within the Park include long-term, negligible impacts from the Wallace Street Pier, the dredging of Baltimore Harbor, Locust Point developments, and the MPA projects; long-term, negligible, beneficial impacts from the Key Highway extension; and short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore. The Wallace Street Pier, dredging of Baltimore Harbor, and the MPA projects would allow for continued growth in the local and regional economy, but would not impact the Park much. The Key Highway extension would also provide for growth in the local and regional economy by facilitating transport of goods as well as commuters. This could result in increased visitation for Fort McHenry. Finally, the anniversary would attract more people to the area and more attention to its resources. The overall impact from these projects would be short-term, minor, and beneficial. **Alternative B** would contribute appreciable increments to these short-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to local economy and land use under **Alternative B** would be **long-term, moderate, and beneficial**, and it would contribute appreciable increments to short-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to local economy and land use.

## **IMPACTS OF ALTERNATIVE C**

Under **Alternative C**, the same actions described in **Alternative B** would occur. There would, however, be more parking available under C if/when the parking terrace was constructed. This could facilitate a more rapid reduction in the number of buses parking in the neighborhood. The improvements made at the Park would also create more incentive than in **Alternative B** for new visitors to come to Fort McHenry and inject money into the local economy. The overall impact would be long-term, moderate, and beneficial.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on local economy and land use within the Park include long-term, negligible impacts from the Wallace Street Pier, the dredging of Baltimore Harbor, Locust Point developments, and the MPA projects; long-term, negligible, beneficial impacts from the Key Highway extension; and short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore. The Wallace Street Pier, dredging of Baltimore Harbor, and the MPA projects would allow for continued growth in the local and regional economy, but would not impact the Park much. The Key Highway extension would also provide for growth in the local and regional economy by facilitating transport of goods as well as commuters. This could result in increased visitation for Fort McHenry. Finally, the anniversary would attract more people to the area and more attention to its resources. The overall impact from these projects would be short-term, minor, and beneficial. **Alternative C** would contribute appreciable increments to these short-term, minor, beneficial impacts.

### *Conclusion*

The overall impact to local economy and land use under **Alternative C** would be **long-term, moderate, and beneficial**, and it would contribute appreciable increments to short-term, minor, beneficial cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to local economy and land use.

## **IMPACTS OF ALTERNATIVE D – NPS PREFERRED ALTERNATIVE**

Under **Alternative D**, an increase in the use of alternative transportation would result in fewer buses parking in the surrounding neighborhood thus preserving the residential setting in the area. It may also present future business opportunities for transportation vendors and other businesses seeking to provide services to those visitors that did not arrive by personal vehicle. Furthermore, the improvements made at the Park would create more incentive than in **Alternative B** for new visitors to come to Fort McHenry and inject money into the local economy. This alternative would have a long-term, moderate, beneficial impact on local economy and land use.

### *Cumulative Impacts*

Present and reasonably foreseeable future actions that would have an impact on local economy and land use within the Park include long-term, negligible impacts from the Wallace Street Pier, the dredging of Baltimore Harbor, Locust Point developments, and the MPA projects; long-term, negligible, beneficial impacts from the Key Highway extension; and short-term, minor, beneficial impacts from the 2014 Anniversary of the Battle of Baltimore. The Wallace Street Pier, dredging of Baltimore Harbor, and the MPA projects would allow for continued growth in the local and regional economy, but would not impact the Park. The Key Highway extension would also provide for growth in the local and regional economy by facilitating transport of goods as well as commuters. This could result in increased visitation of Fort McHenry. Finally, the anniversary would attract more people to the area and more attention to its resources. The overall impact from these projects would be short-term, minor, and beneficial. **Alternative D** would contribute appreciable increments to these short-term, minor, beneficial impacts.

*Conclusion*

The overall impact to local economy and land use under **Alternative D** would be **long-term, moderate, and beneficial** and it would contribute appreciable increments to cumulative impacts. Because there would be no major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the Park's establishing legislation, (2) key to the natural or cultural integrity of the Park or to opportunities for enjoyment of the Park, or (3) identified as a goal in the Park's general management plan or other relevant NPS planning documents, there would be no impairment of Park resources or values related to local economy and land use.

# **CONSULTATION & COORDINATION**

## **INTRODUCTION**

The National Environmental Policy Act requires federal agencies preparing environmental assessments to consult with stakeholders, including the general public and related agencies, early in the planning process to identify issues and concerns. This chapter documents the consultation and coordination the project team has had with local, state, and federal entities, as well as the public, in planning and designing a new Education/Administration facility at Fort McHenry.

## **BRIEF HISTORY OF PLANNING AND PUBLIC INVOLVEMENT**

From its conception, this project has sought to involve the public. It is very important to the NPS that the public not only be aware of the project development, but also play an active role in the process. In order to fully integrate the public into the project, the project team developed a public involvement plan prior to beginning the process. The plan identified ways of sharing information with the public as well as incorporating public comment into the development process.

As this project was initiated, flyers and a press release were sent out to the public to explain the project and invite any public comment on its development. Members of Fort McHenry's staff attended local meetings and visited other gathering spots to announce the project and obtain feedback on its development. On December 16 & 17, 2003, the project team took part in a two-day Choosing by Advantages (CBA) session. Prior to the session, team members worked to develop various options related to their specific fields (transportation, access, facility design). These options were analyzed and rated based on their ability to meet the project goals within the framework of the Park. The options were then combined to create four overall implementation options which would be rated against each other.

CBA is a tool used by the NPS to define a preferred alternative for a given project. For this project, five factors were established by the CBA team. These included: protection of natural and cultural resources, provision of visitor services, improvement to management efficiency and sustainability, needs for an external alternative transportation partner and other advantages to the NPS. CBA entails the description of each option's ability to meet a specific factor's goal in terms of advantages. Then value points are assigned by relative importance of achieving one factor over another, and then the points are totaled.

The team developed four implementation options and scored them according to the factors established by the team. The concept with the most favorable characteristics appeared to be building a new Education Center in the proximity of the existing parking lot. Administrative facilities were recommended to be

provided in a separate building near the historic entrance gate. The scoring of these four options was close across all four options (220 value points to 265 value points) allowing refinement later in the design and compliance process. The initial CBA workshop results were communicated to senior NPS management. Slight changes were discussed for specifying the inclusion of administrative facilities with the Education Center in the vicinity of the existing parking lot. The revised option was then compared to the initially recommended preferred option. The management directed option rated even higher, 345 value points to 275 value points, confirming the prudence of combining the administrative facilities into the Education Center. The final preferred alternative is represented by Option D in this assessment.

Following the CBA, an open house was held at the Fort McHenry Visitor Center on Tuesday January 13, 2004. There were two sessions held to present the various alternatives, transportation planning, cultural resource information, and overall project background to the public. Experts from the project team were on hand to answer questions and explain the development of the project. Comments received at the open house focused on specific desires for the new facility, including access to the new facility, maintaining a view of the flag from the new theater, and maintaining the Park's green space.

At the meeting, a presentation was given to those in attendance. A copy of the presentation was available upon request. Furthermore, a newsletter was developed to provide project background, status, and to present the various alternatives. This information was also posted on the Park web site. Finally, comment forms were available at the open house. Some of these forms were filled out and turned in at the event. Others were mailed to the Park in subsequent weeks, expressing approval and concerns over various elements of the project. The most prominent comments were taken into consideration by the project team.

Another open house is scheduled to be held while this document is in public review. This open house will provide the local community with an opportunity to view the complete plan and provide input to the project team on the particular elements of each alternative. The NPS will also be presenting the project to the City of Baltimore Planning Department.

Prior to the DCP/EA, the ATS study was initiated. Representatives from the Volpe Center interviewed stakeholders in the region to gather information about current transportation opportunities, elements that would improve these opportunities, and data on the use of various transportation alternatives. A list of those individuals contacted for the ATS study is included in the appendix of this document.

## **INTERAGENCY COORDINATION**

Agencies contacted during the planning process include the Army Corps of Engineers, the City of Baltimore Office of Planning, the regional Chesapeake Bay Critical Area Coordinator, Maryland Department of the Environment, MDNR, FWS, the Advisory Council for Historic Preservation, and the (SHPO) as represented by the Division of Historical and Cultural Resources.

The Army Corps of Engineers was contacted to ensure that the project would have no impact on the surrounding wetlands, or navigable waterways that surround Fort McHenry. It was determined that, based on the scale of the project, these resources would not be impacted. The City of Baltimore Office of

Planning was consulted to assure compliance with the city's design standards as well as its Chesapeake Bay Critical Area ordinance. Although Fort McHenry is a federal site, it has placed great efforts in the Chesapeake Bay Initiative and is committed to complying with the State of Maryland's Critical Area Law. The regional Chesapeake Bay Critical Area Coordinator was contacted to determine requirements with the Chesapeake Bay Critical Area Law. Coordination with this office provided guidance for the general mitigation information presented in this document. Further coordination will occur as the project develops to ensure the Park fully complies with the Chesapeake Bay Law.

MDNR and FWS commented on the project with regards to potential impacts to federal and state threatened and endangered species. These agencies confirmed that there would be no adverse impacts to these sensitive resources. Finally, coordination with the SHPO was initiated in October 2003. Representatives from Fort McHenry met with representatives of the Division of Historical and Cultural Resources to explain the general outline of the project, as well as the relationship between the various plans. Subsequent correspondences between the Park and the State confirmed that this document would address Section 106 compliance under the NHPA. The state and the Park also agreed on a review schedule that would coincide with the public review of this document.

Please see Appendix A for copies of written correspondence with agencies.

## **LIST OF RECIPIENTS**

This DCP/EA/AOE is on formal public review for 30 days and has been distributed to a variety of interested individuals, agencies, and organizations, including those listed under "Consultation & Coordination." The State of Maryland will carry out an extended 60-day review with respects to coastal zone management. This EA is available on the Internet at [www.nps.gov/fomc](http://www.nps.gov/fomc) in the "Management Documents" section, and has been placed in local libraries during the review and comment period.

### **Local Agencies and Offices**

Baltimore City Department of Transportation  
Baltimore City Department of Planning  
Baltimore City Fire Boat  
Baltimore City Heritage Area  
Baltimore City Mayor's Office  
Baltimore County Department of Recreation and Parks  
Baltimore Department of Transportation  
Baltimore Metropolitan Council

### **State Agencies and Offices**

Baltimore Office of Promotion

Governor of Maryland  
Maryland Department of the Environment  
Maryland Department of Natural Resources  
Maryland Department of Transportation  
Maryland House of Representatives – Honorable Brian McHale  
Maryland Historical Trust/Maryland State Historic Preservation Officer  
Maryland Port Administration  
Maryland Senate – Honorable George W. Della

**Federal Agencies and Offices**

Chesapeake Bay Gateways Network  
National Park Service – Mid-Atlantic Council  
National Park Service – Washington Office  
U.S. Army Corps of Engineers  
U.S. House of Representatives – Honorable Wayne T. Gilchrest, Benjamin Cardin, Steny Hoyer  
U.S. Senate - Honorable Paul Sarbanes and Barbara Mikulski  
U.S. Naval Reserve

**Private Organizations**

Baltimore Area Visitor and Convention Association  
Baltimore City Historical Society  
Baltimore Development Corporation  
Baltimore Downtown Partnership  
Baltimore Museum of Industry  
Daughters of the War of 1812 – National Headquarters  
Ed Kane’s Water Taxi/Harbor Boating, Inc.  
Enoch Pratt Free Library  
Fells Point/Federal Hill Historic District Commission  
Fort McHenry Business Association  
Francis Scott Key Elementary/Middle School  
Friends of Patterson Park  
Greater Baltimore History Alliance  
Historic Hampton, Inc.  
Living Classrooms Foundation  
Locust Point Civic Association  
Maryland Historical Society  
Maryland Science Center  
Maryland Office of Tourism Development  
National Aquarium in Baltimore  
National Flag Day Foundation  
National Historic Seaport of Baltimore  
Patriots of Fort McHenry  
Preservation Maryland  
Pride of Baltimore, Inc  
Society of the War of 1812 in Maryland  
Star-Spangled Banner Flag House and Museum  
Struever, Brothers, Eccles & Rouse, Inc.  
War of 1812 Initiative

# REFERENCES

## ACRONYMS

**ACM** – Asbestos-containing material  
**ADA** – Americans with Disabilities Act  
**AOE** – Assessment of Effect  
**AST** – Above Ground Storage Tank  
**ATS** – Alternative Transportation Study  
**BCSCD** – Baltimore County Soil Conservation District  
**BMP** – Best Management Practice  
**CBA** – Choosing By Advantages  
**CBGN** – Chesapeake Bay Gateways Network  
**CEQ** – Council on Environmental Quality  
**CFR** – Code of Federal Regulations  
**CLR** – Cultural Landscape Report  
**COE** – United States Army Corps of Engineers  
**CWA** – Clean Water Act  
**CWP** – Center for Watershed Protection  
**CZMA** – Coastal Zone Management Act  
**DCP** – Development Concept Plan  
**DCP/EA/AOE** – Development Concept Plan/Environmental Assessment/Assessment of Effect  
**DHPA** -- Designated habitat protection area  
**DNR** – Department of Natural Resources  
**DO** – NPS Director’s Order  
**DOI** – Department of the Interior  
**EA** – Environmental Assessment  
**EPA** – Environmental Protection Agency  
**ESA** – Endangered Species Act  
**FEMA** – Federal Emergency Management Agency  
**FWS** – United States Fish and Wildlife Service

**HARP** – Historical and Archeological Reports Program  
**HVAC** – Heating, ventilation, and air conditioning  
**IDA** – Intensely developed areas  
**LBP** – Lead-based paint  
**MDE** – Maryland Department of Environment  
**MOA** – Memorandum of Agreement  
**MOU** – Memorandum of Understanding  
**MPA** – Maryland Port Administration  
**MTA** – Maryland Transportation Authority  
**NEPA** – National Environmental Policy Act  
**NGVD** – National Geodetic Vertical Datum of 1929  
**NHPA** – National Historic Preservation Act  
**NHS** – National Historic Site  
**NHT** – National Historic Trail  
**NMP** – National Military Park  
**NO<sub>x</sub>** - Nitrates  
**NPS** – National Park Service  
**NR** – National Register  
**NRHP** – National Register of Historic Places  
**OMB** – Office of Management and Budget  
**PMIS** – Project Management Information System  
**RCA** – Resource conservation area  
**SOF** – Statement of Findings  
**SHPO** – State Historic Preservation Office  
**SO<sub>2</sub>** – Sulfur Dioxide  
**USDA** – United States Department of Agriculture  
**USGS** – United States Geological Survey  
**USNR** – United States Naval Reserve  
**UST** – Underground Storage Tank

## BIBLIOGRAPHY

- Aley, Jennifer and Professor William R. Branch, Jr. 1997. *Baltimore Park Visitor Demographics: A Survey of Park Visitors from the Baltimore Region.*
- Basu, Anirban. 2001. *Economic Impact Analysis.* Prepared for Living Classrooms Foundation.
- Center for Watershed Protection (CWP). 2003. *Maryland Chesapeake and Atlantic Coastal Bays Critical Area 10% Rule Guidance Manual.*
- Cheek, Charles D. Joseph Balicki, and John Pousson. 2000. *'On the shore dimly seen...' an Archeological Overview Fort McHenry National Monument and Historic Shrine Baltimore, Maryland.*
- City of Baltimore Department of Planning. 2003. *Baltimore City Critical Area Management Program.*
- Environmental Protection Agency. July 2004. *National Environmental Justice Advisory Council.* Available on the Internet at <http://www.epa.gov/compliance/environmentaljustice/>
- Fort McHenry National Monument & Historic Shrine, National Park Service. 1968. *A Master Plan for Fort McHenry National Monument & Historic Shrine.*
- \_\_\_\_\_. 1988. *Amendment to the 1968 Master Plan and Environmental Assessment.*
- \_\_\_\_\_. 1999. *Fort McHenry National Monument & Historic Shrine Resource Management Plan.*
- \_\_\_\_\_. 2000. *Strategic Plan for Fort McHenry National Monument & Historic Shrine: Fiscal Year 2001 – 2005.*
- \_\_\_\_\_. 2002. *Fort McHenry National Monument & Historic Shrine Comprehensive Interpretive Plan.*
- \_\_\_\_\_. 2002. *Annual Performance Plan for Fort McHenry National Monument & Historic Shrine: Fiscal Year 2003.*
- \_\_\_\_\_. 2002. *Rehabilitation of Historic Seawall: Environmental Assessment and Section 106 Assessment of Effect.*
- Maryland Department of the Environment (MDE). 2000. *2000 Maryland Stormwater Design Manual: Volumes I & II.*
- Maryland Department of the Environment (MDE). 2001. *Maryland Stormwater Management Guidelines for State and Federal Projects.*

- Maryland Port Administration (MPA). 2000. *Maryland Port Administration Marine Terminal Development Plan 2000-2010*.
- National Park Service, U.S. Department of Interior. 1984. *Park Road Standards*.
- \_\_\_\_\_. 1990. National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation*.
- \_\_\_\_\_. 1993. *Conserve O Gram: Hazardous Materials Health and Safety Update*.
- \_\_\_\_\_. 1996. *The Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*.
- \_\_\_\_\_. 1998. *NPS-28: Cultural Resource Management Guideline*. Available on the Internet at [http://www.cr.nps.gov/history/online\\_books/nps28/28contents.htm](http://www.cr.nps.gov/history/online_books/nps28/28contents.htm)
- \_\_\_\_\_. 1998. *NPS Museum Handbook*. Available on the Internet at: <http://www.cr.nps.gov/museum/publications/handbook.html>
- \_\_\_\_\_. 2000. *NPS Management Policies 2001*. Washington, D.C.
- \_\_\_\_\_. 2000a. *Director's Order 47: Sound Preservation and Noise Management*. Available on the Internet at <http://www.nps.gov/policy/DOrders/DOrder47.html>
- \_\_\_\_\_. 2003. *Director's Order #77-2 Floodplain Management*. Available on the Internet at <http://www.nps.gov/policy/DOrders/DO77-2--Floodplains.pdf>
- \_\_\_\_\_. 2003a. *Procedural Manual 77-2: Floodplain Management*. Available on the Internet at <http://www.nature.nps.gov/rm77/floodplain.htm>
- \_\_\_\_\_. 2003b. Letter to Rodney Little, Maryland Historical Trust. Description: Determination of Eligibility for Mission 66 Era Development at Fort McHenry National Monument and Historic Shrine.
- Nature Conservancy and Environmental Systems Research Institute. November 1994. *Final Draft Standardized National Vegetation Classification System*. Prepared for the U.S. Department of Interior's National Biological Survey and National Park Service.
- Olmsted Center. February 5, 2004. *Cultural Landscape Report for Fort McHenry National Monument and Historic Shrine: Detailed Outline and Working Chronology 50% Draft*.
- Urban Resources Initiative: School of Forestry and Environmental Studies: Yale University. 1991. *Working Paper #8: Fort McHenry National Monument and Historic Shrine Market Study*.  
\_\_\_\_\_. *Series Preface and Report One: Methods*.  
\_\_\_\_\_. *Report Two: Catchment Area and Place of Fort McHenry in Region*.

- \_\_\_\_. Report Three: Visitor Profile – Group Characteristics.*
- \_\_\_\_. Report Four: Visitor Profile – Demographics.*
- \_\_\_\_. Report Five: Visitor Profile – Likes and Dislikes.*
- \_\_\_\_. Report Six: Visitor Profile – Desires.*
- \_\_\_\_. Report Seven: Economic Activities in and Around Park.*

Volpe National Transportation Systems Center, U.S. Department of Transportation. March 2004. *Fort McHenry Alternative Transportation Study: Draft.*

## LIST OF PREPARERS

This document was prepared by Vanasse Hangen Brustlin, Inc.

### VANASSE HANGEN BRUSTLIN, INC.

|                      |  |
|----------------------|--|
| Nancy Barker         | Environmental Services Manager           |
| Margaret Beavers     | Environmental Scientist/GIS Analyst      |
| Christopher Conklin  | Project Manager/Transportation           |
| Bill Cranshaw        | Project Manager/Transportation           |
| Chris DeWitt         | Project Manager                          |
| Dawn Frost           | Environmental Planner/Cultural Resources |
| Tim Hogan            | Project Manager/Stormwater Management    |
| Kevin McMaster       | GIS Analyst                              |
| Lou Penci            | Project Engineer                         |
| Susan Sloan-Rossiter | Senior Project Manager/Transportation    |
| Christina Shumate    | Environmental Planner                    |
| Scott Smizik         | Environmental Planner                    |
| Tricia Wingard       | Project Manager                          |

### CARLTON ABBOTT AND PARTNERS, P.C.

|                        |                     |
|------------------------|---------------------|
| Carlton Abbott, FAIA   | Architect           |
| Robert Crawshaw        | Graphics            |
| Jane Jacobs, ASLA, CLA | Landscape Architect |
| Ed Pillsbury           | Graphics/modeling   |

## LIST OF CONTRIBUTORS

### VOLPE CENTER

|             |  |
|-------------|--|
| Mike Dyer   |  |
| Eric Plosky |  |

## **NATIONAL PARK SERVICE**

### **DENVER SERVICE CENTER**

|               |                              |
|---------------|------------------------------|
| Hugh Duffy    | Project Manager              |
| Ed Moery      | Landscape Architect          |
| Jane Sikoryak | Cultural Resource Specialist |
| Paul Wharry   | Natural Resource Specialist  |

### **FORT MCHENRY NATIONAL MONUMENT & HISTORIC SHRINE**

|                     |  |
|---------------------|--|
| Paul Bitzel         | Horticulturalist                               |
| Anna von Lunz       | Cultural Resource Manager                      |
| Greg McGuire        | Chief of Maintenance/<br>Acting Superintendent |
| Laura Joss          | Superintendent                                 |
| John McKenna        | General Superintendent                         |
| Paul Plamann        | Park Ranger                                    |
| John Pousson        | Archeologist                                   |
| Scott Sheds         | Park Ranger                                    |
| Charlie Strickfaden | Chief Ranger                                   |

### **NORTHEAST REGION**

|                |   |
|----------------|---|
| Shaun Eyring   | NEPA/106 Coordinator                          |
| Bob Holzheimer | Project Manager                               |
| Jacki Katzmire | NEPA/106 Coordinator                          |
| Bob McIntosh   | Planning and Partnership Directorate          |
| Terrance Moore | Chief of Park Planning and Special<br>Studies |

### **OLMSTED CENTER FOR LANDSCAPE PRESERVATION**

|              |                                |
|--------------|--------------------------------|
| Mark Davison | Historical Landscape Architect |
| Eliot Foulds | Historical Landscape Architect |



# **APPENDIX A**

## **CORRESPONDENCE**



# **APPENDIX B**

## **ATS STAKEHOLDERS**